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These Three Magnesite Bricks Are Worth One Dollar. If a workman saves one, he saves 33⅓c.

Large Saving of Small Wastes

American Rolling Mill Co. Puts on Thrift Campaign Among Workmen — Discarded Bricks Used in House Building—Inventory of Supplies Greatly Reduced

BY M. E. DANFORD*

COL. F. VERNON WILLEY, president, and Guy Locock, assistant director of the Federated British Industries, after an exhaustive study of American manufacturing methods, reported among other pertinent observations that "American industry is faced today with increased capital values and the necessity of earning a return on them, but the producer has been unable to raise his prices because if he did so he could not sell his product."

That brings us hard against one of the greatest problems with which industrial managers are faced today—thrift.

Stimulated and perfected by American engineering ingenuity, American production has startled the world. It is the industrial lesson of the ages. The outcome is that with such tremendous output there has come a definite limit to the price the producer can get. Yet capital must enjoy a fair return. Workers must receive a fair wage. The wheels of industry must be kept moving.

What is the answer?

The wisest economist that ever lived could not state it in few words. It is a composite affair. But looming prominently is this one hard and cold fact: Industry must find its profits largely within its own walls. In other words, industrial thrift must be practiced relentlessly.

Cultivating Thrift Habit Among Workers

Thrift is as essential to industry as it is to personal security from financial worry. Essential as it is, an incentive to industrial thrift does not come home to some workers as does the necessity of personal thrift. They do not see their money going out for wasted oil. Why should they worry about an inefficient gas burner? What does it matter if the company has two spare parts in store when one is all there should be? It is not their money that is paying the bills.

This, then, is the attitude that must be overcome. And American ingenuity is overcoming it. Today the worker is often a stockholder in the company. He shares in the profits, if there are any. He knows, too, that there can not be so much profit as there would be if there were no waste. So his own selfish interest is

*Works manager American Rolling Mill Co., Middletown, Ohio.

How Steel Company Saved Thousands of Dollars by Eliminating Small Wastes

EACH workman was told that a saving of 5c. per day per man would mean $50,000 a year. Every department was given a quota—eventually the full quota was obtained. The maintenance department, for example, cut its operating costs 10 per cent.

The open-hearth department, by adopting a new method for drying newly lined ladles, stopper rods and spouts, saved 38,000,000 cu. ft. of gas, equal to $17,000.

A new schedule for relining of open-hearth furnaces and other necessary repairs was worked out, saving time in loss from idle equipment.

Inventory items cut from 25,000 to 15,000—with 10,000 the goal for end of this year.

Dump pile combed for reclaimable material. Discarded bricks used for building of workmen's homes and for construction of retaining walls and certain foundations in the plant.

his incentive to practice thrift. And every last one of us is selfish.

In our organization we have emphasized the absolute necessity for thrift for many years. We have enjoyed splendid cooperation from the workmen. Yet, in a large and growing industry the necessity for economies arises with the same regularity with which men come and go to their work. We have never become so thrifty that we could forget our thrift.

So we have just gone through one of our intensive thrift campaigns, and the results are—I was about to say surprising; yet they are not to one who has wrestled with the problem for years.

As a reward for our year's effort we have to our

This Long Luminous Flame Was Once Used for Heating Ladles. It was expensive. A new burner was designed to eliminate this waste

credit a sum of money that would make any man very comfortable for the rest of his days. It is large enough that the hundreds of men who helped save it are proud to know they put it on the credit side of the ledger.

Employees Taught Meaning of Thrift

We went about it this way: We brought the men together and talked with them in heart-to-heart fashion. We knew that unless each worker accepted his responsibility nothing would be accomplished. So we told the men what we were doing; why we were doing it—that the present industrial conditions demanded thrift as never before; and finally we told them just *how* we intended to go about our war on waste.

When the men learned that in an organization of, say 3500 employees, the number at our Middletown works, a saving of 5c. a day by each man would total $50,000 a year, they began to think intently about that 5c. daily. Then, when they learned that one silica brick and a clay brick saved each day would mean 5c. saved, and that a chrome brick a day would mean 30c. saved, they began to think where they could save a brick.

And when one stops to think that 20 per cent of the material that goes into an open-hearth furnace goes there as scrap, one realizes that a saving of only 1 per cent would mean hundreds of thousands of dollars saved in a year. Men working around an open-hearth department assume quite a different attitude when they understand that two and one-half months of the year are unproductive.

Just such simple illustrations as these drove home a lasting appreciation of industrial responsibility.

So the plan in detail was gone over. It was then put up to superintendents and foremen to carry through with the plan; but the men, those who were actually making the plan work, always knew just what was being accomplished. That was a very important part of our plan.

Plan Worked Out for Each Department

Each department was given a quota. I based these quotas on records of what had been accomplished in the past, and the proportion of the goal each department was expected to deliver. Standards were set up for each department. By conforming to these standards, each department could reasonably expect to reach its quota. This part of the work called for a careful analysis of the main divisions of costs—labor, fuel, service, supplies, repairs, and yield of product. Mr. Reinartz, assistant general superintendent, worked out this latter detail.

With these factors established, the contest was on. At first considerable difficulty was encountered in meeting the quotas, because the yield was low or extraordinary expenditures occurred. However, by constant campaigning the yield was increased, supplies were curtailed, and losses were stopped, so that the quota was attained.

An outstanding record was made by the maintenance department, which reduced its operating costs 10 per cent.

The open-hearth department saved 38,000,000 cu. ft. of natural gas. Gas costs 45c. per 1000 cu. ft. Here was $17,000 to the credit of thrift. This $17,000 worth of gas was used for drying newly lined ladles, stopper rods, and spouts, and for heating ladles. Ladlemen thought that proper results could not be secured without a long luminous flame. Our betterment department and the general pit foreman believed that proper combustion might get the same results and save a lot of gas. The outcome was a new burner designed for complete combustion, covers for the ladles, and the tidy sum of $17,000.

We lay special emphasis upon repairing defects as soon as discovered, because it is human weakness to put off little tasks, even though they may grow into big ones. Workmen in the power division stopped the slightest steam leak. No chances were taken, because leaks in a power division mean a waste of fuel and a possible interruption of service, which would be very costly.

If an open-hearth furnace is shut down, the loss of production is reflected in the cost of the finished product. And if the shut-down is longer than the minimum time for necessary repairs, production costs take a decided upward trend. To keep down cost, time must be productive. Lost time is lost tonnage, and lost tonnage is increased cost.

Open-Hearth Furnace Relining on Schedule

Out of our thrift campaign came a new schedule for the relining and repairing of open-hearth furnaces. It is more dependable than any previous schedule. Experience had taught us that an open-hearth furnace would be non-productive a certain number of days a year and that repairs came with almost absolute regularity. So our repair crews were carefully timed, and furnaces were repaired before they reached the point where they had to be nursed and constantly favored. No longer does the melter try to get the last possible ton of metal before the furnaces are repaired. This practice saves thousands of dollars. Our soaking pits are on the same repair schedule.

The matter of inventories has been quite a problem with us, as with industry in general. The end of the World War found us with a large investment in supplies. This had already been cut in half by 1921. But

our campaign for thrift further reduced our store stock from 25,000 to 15,000 items and another survey reduced it to 13,500. Our goal for December, 1926, is 10,000 items. The decrease has been accomplished by narrowing the range of sizes of materials. All stocks eliminated were sold by our purchasing department.

And so our campaign of thrift has gone along. Everything is rigidly scrutinized. Even the dump had to prove its right to be called a dump, for this rather unprepossessing part of industry can give up some interesting thrift skeletons.

Waste Bricks Used for Home Building

For instance, a superintendent of a plant making a drive on waste was giving the dump a casual once-over. It was clean—unusually clean. But the superintendent noticed some brick houses that had recently been built just across the road. Those bricks had a familiar look about them. And here is what had happened: the bricks had been picked up from the dump. Although they were badly burned and scarred from use in checker chambers, they made substantial houses. No bricks go to that dump any more. Instead they go into retaining walls, and certain foundations.

In the round-up, along with the more important items, 35,000 ft. of old crating, 5000 old ties used for heating the finishing building, 150 tons of sand, 23 tons of paper, 16 tons of metal barrels, 71 tons of old iron, 7500 tons of boiler house ashes and checker dust, and 6400 pounds of scrap rope contributed to the grand total, enough to pay us splendidly for all our time and effort.

But it seemed to me that the greatest result is the lesson in thrift that has been driven home to the rank and file of our organization. At the final meeting, when all of us were together talking over the good work that had been accomplished without in any way interfering with a person's productivity, there was a spirit of genuine enthusiasm for the elimination of waste. And I could not help but feel that those men would carry the lesson into their own homes and apply the principles of industrial thrift to their personal affairs. If so, we have accomplished better than we hoped. And in doing so, we shall have the satisfaction of knowing that our workmen are doubly conscious of the responsibility resting upon them to help find some profit within our own walls.

This Pile of Bricks Is Being Inspected to Determine Where and How They Can Be Re-used

The Walls of This House (Above) Were Once Old Checker Chamber Brick Thrown Upon the Dump

Here Is a Four-Family House (Left) of Sturdy Construction, Made Principally of Old Checker Chamber Brick

Stoker Burns Part of the Coal in Suspension

A stoker combining the burning of coal in suspension as well as by the spreading and coking methods has recently been developed by the CoKal Stoker Corporation, Wrigley Building, Chicago. It is termed the Pulverzone CoKal stoker because of a feature that as coal is fed over the coking table a blast of air or steam passes through it separating out the fines and burning them in suspension. Standard 1¼-in. screenings are placed in the stoker hopper, from which they are fed either by power rams or manually to a coking table which is subjected to the heat radiated from a suspended arch. The coking table is constructed of a series of shapes through which are openings allowing the passage of either an air blast or steam.

Some of the volatile matter is distilled off on the coking table and then as the coal falls over the edge of the table it passes in front of the blast openings and the lighter particles are blown out into the combustion chamber. By this method the particles which are small enough to be consumed while in suspension are burned in the same manner as is pulverized fuel and the larger particles are automatically distributed over the grate surface in accordance with their weight. That is, the large lumps will fall close to the forward end of the stoker and the lighter particles near the dump grate.

The grate is hand operated and slopes toward the rear of the furnace. The operation of the stoking levers progressively feeds coal from the front end to the dump plate, which is hand operated. The flexibility of this unit is illustrated by the fact that it can be operated as a stationary grate when fire doors are provided, as a shaking grate by spreading the coal with a shovel through the fire doors, as a standard hand-fed stoker, as a standard hopper-feed stoker and as a power-feed stoker. This stoker is made in sizes ranging from 50 hp. to 2000 hp. Approximately 2 per cent of boiler rating is used for creating turbulence, for power feed and coal distribution.

Case Hardening with Nitrides

New Process, Not Widely Known, Developed by Krupp —Low Temperatures and No Quenching or Drawing —Deformation Slight—Suited to Special Steels

THE Friedrich Krupp A. G. of Essen, Germany, publishes a monthly magazine, the *Kruppsche Monatshefte*, which contains articles of technical and scientific interest in keeping with the reputation of that great company. In the February issue of this year, the first article, by one of the research workers, Dr. A. Fry, discusses the company's new nitride case-hardening process. While the article is mainly of general interest, it throws some light on the technical details of the process, which is very little, if at all, known in the United States.

The present method of case-carburizing is briefly outlined and some of its defects mentioned, such as the deformation usually experienced, the production of hardening or quenching cracks, and the difficulty or impossibility of using the process for delicate parts.

In order to overcome these objections, the method of nitride case-hardening has been developed and is protected by patents in Germany and other countries. The process is carried out at comparatively low temperatures and no quenching or drawing is needed. The hardening element, nitrogen, commences to diffuse into iron as low as 250 deg. C. and the special steels suitable for the process are invested with great surface hardness.

How the Process Is Carried Out

The process is carried out as follows: The pieces to be treated are made of special steel and completely finished. Final grinding after the process is usually quite unnecessary because of the small changes in dimensions. If required in exceptional cases, only a few hundredths of a millimeter need be removed. The pieces for treatment are exposed to the influence of nitrogen in a nascent condition at temperatures below 580 deg. C. (1076 deg. Fahr.), the time varying with the depth of case desired. The pieces are then removed from the furnace and slowly cooled. No quenching is done. As a rule the pieces are completely ready for use after the slow cooling. A slight tinge of gray, or a slight stain, is characteristic of the nitride hardening and may be removed if needed with a light polishing.

Annealing Before Treatment

It is evident that this treatment will not bring about deformation, if the pieces to be treated are free from internal strains. It is therefore recommended that complicated pieces be given a careful annealing before treatment. However, the process does bring about change in volume, which is found to obey regular laws, and the paper gives details of these laws, which are of the utmost importance in the treatment of ring-shaped and thin-walled pieces. The paper also gives interesting examples of the very small amount of deformation brought about, by comparing spiral shaped pieces after ordinary case-hardening, tool steel after quenching and special steel after the nitride case-hardening.

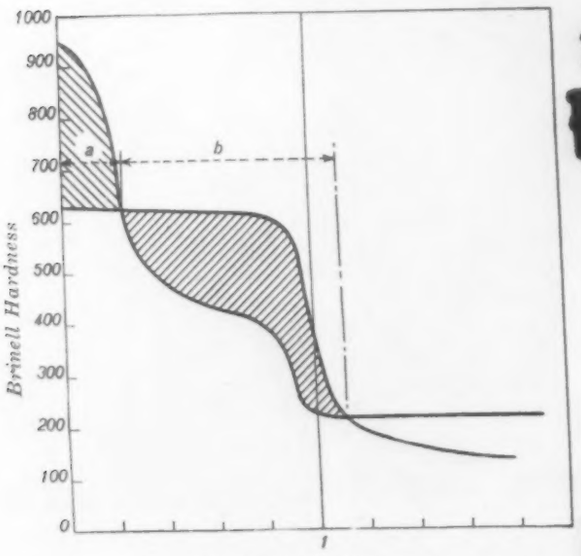


Fig. 1—Comparison of Hardness, Nitride Process and Case Hardening. The nitride hardening curve starts at 950 at the surface of the specimen

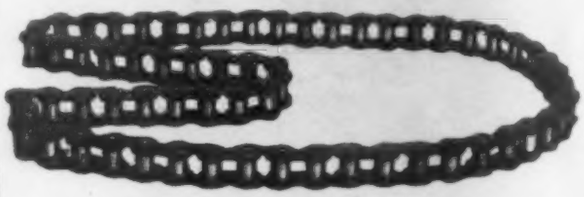


Fig. 2—Nitride Hardened Chain Drive

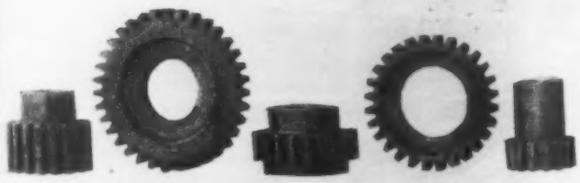


Fig. 3—Nitride Hardened Gears

An approximation to the hardness-depth curve of the outer layers of steel is given in Fig. 1, the method of determining the hardness not being given in detail. It is stated that it is determined by different testing methods, and its correctness established by practical tests. The original paper also shows photomicrographs of the corresponding outer layers. The hardness of the nitride surface is shown to be far greater than that of the ordinary case-hardened material, about 950 Brinell as compared with about 630 (determined by the Herbert machine). This drops off rather rapidly, the inner layers being below glass hardness. Ordinary case-hardening gives a case which is hard to a greater depth than with the nitride process and, if needed, the case can be made more than 1 mm. thick, which has not been done up to the present time with the nitride method.

Practical and Operating Results

A practical result of these tests is that, in cases where there are particularly high surface pressures, the

ordinary case-hardening method is to be chosen. On the other hand, with ordinary pressures, the new method is better, because of greater resistance to wear and maintenance of exact size. Surface pressures for nitride case-hardened pieces can reach 100,000 lb. per sq. in., according to present experience, varying with the kind of steel used. Corners should be rounded. The process is not suitable for the production of cutting tools.

Operating results have shown that machine parts treated by this process show much less wear than ordinary case-hardened parts. A nitride hardened crank shaft in a truck after a year's operation showed only one-fifth of the wear of a case-hardened crank shaft in a similar truck and in the same work. Nitride hardened chain drives for trucks, as shown in Fig. 2, show little wear after 10 months, while ordinary case-hardened drives in the same trucks have to be replaced in six months. Soft spots, which are common with the ordinary process, are practically unknown with the

Fig. 4—Nitride Hardened Worm

new process; also sudden changes of section are not to be feared, because there are no hardening cracks.

The hardness of the nitride layer is held up to at least 500 deg. C. (932 deg. Fahr.), and even at 500 deg. C. the surface cannot be touched with a file. This is important for parts that may reach a high operating temperature, because ordinary case-hardened parts lose their hardness to a marked degree at 250 deg. C.; at 500 deg. C. they are comparatively soft.

Suited to Only Special Steels

It is important to note that only special steels are suited to the process, steels that may be obtained from Krupp's or their licensees, which steels correspond in all their properties and cost to chrome or chrome-nickel steels. The physical properties of four of these steels are given in a table in the original paper. Tensile strengths alone will be mentioned here:

> Steel FP 11, 121,000 to 178,000 lb.; FP 13, 106,700 to 142,300 lb.; FP 15, 92,500 to 113,800 lb.; and FP 17, 78,200 lb. per sq. in.

The latter is suitable for use in automatic machines. The steels can be forged or rolled into bars or rolled into sheets, pressed or drawn.

The process has passed the experimental stage. Over 10,000 pieces are in actual operation and giving excellent results, and the paper gives a list of places and parts. Some of these are shown in Figs. 3, 4, 5 and 6. The paper also gives a few figures on costs under German conditions. Special apparatus is necessary, and direct current is needed. The firm of Krupp furnishes its licensees the complete apparatus, the total cost being about as follows:

For	2 tons finished product per month	$4,350
For	6 tons finished product per month	6,000
For	12 tons finished product per month	8,000
For	35 tons finished product per month	12,500

The operating costs are low, two to four men are enough for the 35-ton plant and skilled labor is not

Fig. 5—Nitride Hardened Locomotive Link With Block

required. The process is of decided interest in places where alloy steels are now used or where thin-walled and intricate shapes are required. G. B. W.

American Exhibits at Leipzig Trade Fair

The United States will have 700 exhibits of industrial products at the Leipzig Trade Fair which will be held at Leipzig, Germany, from Aug. 29 to Sept. 4. More than 15,000 exhibitors will show their products, and a score of countries, including the United States, will be represented. The displays will occupy 4,000,000 sq. ft. of floor space and will be housed in 100 permanent buildings. The metal wares division will embrace about 1500 exhibits, and the largest display will be of textile machinery with 2500 exhibits. Last year the fair was visited by 180,000 buyers as compared with 20,000 in 1914. More than 1500 buyers are expected from the United States this year. The fair has been held for 700 years. American headquarters are the Leipzig Trade Fair, Inc., 630 Fifth Avenue, New York.

New Refractory Cement or Mortar

A new refractory for the maintenance of brick or monolithic furnace walls and arches has been brought out by the Plibrico Jointless Firebrick Co., 1130 Clay Street, Chicago. It is offered under the trade name "Plibrico Stucco." It is applied to the wall or arch as often as a boiler is taken off the line and the material is intended to replace that part of the furnace wall which has been eaten away during the last service period. It is applied in thin coats, or several coats, if necessary, and is put on in a similar manner to ordinary cement or mortar. The manufacturers point to one case where the wall, after being repaired with the new material lasted 12 months, as against a previous life of not much more than 14 weeks at the best. The material can be used only where very high furnace temperatures obtain.

Fig. 6—Parts for Textile Machines, Also Pistons, Gages, etc., Case-Hardened by Nitride Process

Hot Galvanizing Steel Burial Vaults

Use of City Gas Reported to Effect a Saving—Special Forming Presses Employed

BY J. B. NEALEY*

DEMAND for a vandal-proof dry vault has caused the development and manufacture of a steel vault, or casket holder, which is indestructible and permanently locked. This vault is made by the Sozonian Burial Vault Co., Toledo, Ohio.

Copper-bearing steel sheets are cut to size and run through a power press, which forms ribs across their width some 3½ in. apart, which add stiffening and strength to the sheets. Another press panels the entire side sheet, flattens that part of the ribs or seams extending across the selvage of the panel, shears edges and trims corners. A mechanical folder turns flanges on the edges of the selvage. These panels are to form the sides and ends of the finished vault. A single power machine, now under construction, will be installed shortly, designed to do these five operations at a single turn. This ribbed construction is covered by patents held by the company.

Corners Are Lock Seamed

The top is formed in a similar manner to the sides and ends but, in addition, it is given a rounded or crown shape in a press with the proper shaped die. Rounded steel corner pieces are formed in presses and flanged in the mechanical folder to fit the flanges of the panels. The sides and ends are then set up to form the vault, the rounded corner pieces fitted in and the flanges forced together to form a double-lock seam that is very nearly watertight, and quite so after galvanizing. The entire top edge is then flanged and turned over and under a heavy steel angle iron, thereby adding more strength to the construction. The top is then put on and double-lock seamed into the sides and ends.

This forms the bell of the steel vault and it is made to fit down and onto a steel bottom-piece on which the casket rests. The strength of this construction was recently demonstrated by placing weights totaling more than 5 tons on top of one of the bells, without causing distortion. The average weight of burial earth is only 5500 lb.. The handles are then riveted on.

The bottom is formed of a 12-gage galvanized steel sheet, the edges turned down on a bending brake and then turned out and up for a stiffening flange. Thus is formed a 3-in. wall all around to hold the bottom floor of the vault off the ground. Four buttons are then put on the floor of the vault on which to rest the casket, and four malleable iron handles are riveted on the outer edges.

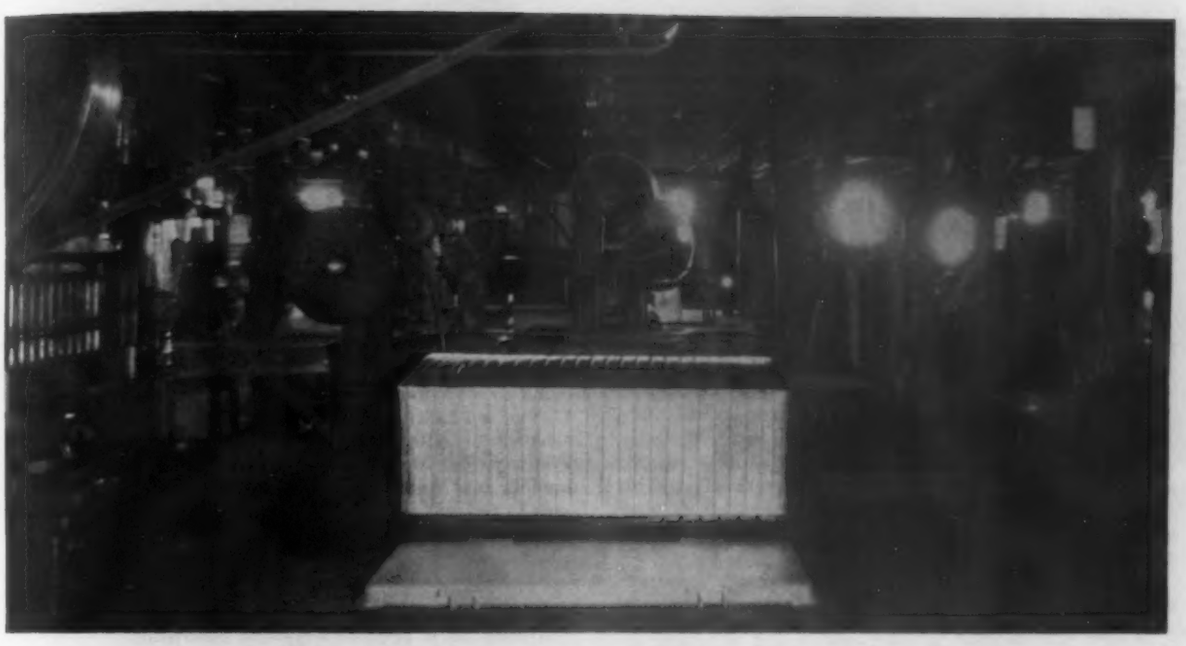
Permanent Locking Device

Now comes the construction by which the vault, after the casket has been placed therein, is locked. On each corner of the base a casting, housing a locking device, is fastened. The lock member consists of one part only, a weighted steel casting held in place by a cotter pin. When this cotter pin is removed, the lock member swings outward of its own weight and engages the flange on the bottom edge of the bell, making a positive lock without the use of springs or other moving parts. As no keyway is required or provided, and as the lock is completely closed and hidden from view, once the cotter pin is removed, the vault is permanently locked. This lock is patented.

The next process in the construction of these vaults is rust proofing by galvanizing the bells. These are first pickled in vats containing a 10 per cent solution of sulphuric acid for some 15 min., to rid the steel of scale. They are then washed in a bath of water and dipped in a 15 per cent solution of muriatic acid to clean off grease and prepare for galvanizing. The bells are then hot dipped in a galvanizing bath of melted zinc for about 5 min. The tank, or kettle, is of forged steel 12 ft. long, 5 ft. wide and 5 ft. deep; the sides are 1 in. thick and the bottom 1½ in. This kettle weighs

*Surface Combustion Co., New York.

Galvanizing Kettle at Plant of Sozonian Burial Vault Co., Toledo, Is Heated by Means of Gas



Presses, Folders and Other Sheet Metal Machinery Form the Ribbed Construction of the Steel Vault Shown in Foreground

19,000 lb. and it takes 138,000 lb. of zinc to fill it; it is bricked in solidly with a 5-ft. brick wall.

City Gas Used as Fuel

As these kettles are expensive, the choice of fuel and combustion equipment was made with an eye to prolonging its life. The installation firing this kettle was designed and manufactured by the Surface Combustion Co., New York, and city gas is the fuel used. With this equipment and using city gas, a saving of 33 1/3 per cent is reported over the old method of firing with natural gas.

High and low-pressure gas burner systems are made for this purpose, the type being governed by local conditions. In both systems the volume of gas flow and degree of temperature are regulated by a single valve. This single valve control is made possible through the use of patented inspirators or Venturi tubes.

By means of these inspirators, the air and gas are automatically proportioned, in the ratio for complete combustion, regardless of volume of flow. In the low-pressure system, as used by the Sozonian Burial Vault Co., air is raised to about 1½ lb. pressure by a pressure blower, and gas, which has been dropped from line to atmospheric pressure by a governor, is entrained in the inspirators. In the high-pressure system gas is boosted to about 10 lb. pressure and air sucked in by the inspirators.

In obtaining the full effects of the heat liberated by the gas combustion, two methods are used. In one method the gas is fired into a porous refractory material, while in the other, the burner nozzle is located in the axis of a cylindrical tunnel, the walls of which are formed of a highly refractory material, which is brought up to incandescence, promoting radiation.

Tunnel burners, some ten in number, are used in this installation and the heat is radiated through flues or combustion chambers running through the entire length of the brick walls on both sides. As the zinc must be maintained in a molten state the year around, some ten square tile or atmospheric burners, which consume less gas, are provided to keep up heat when the kettle is not operating. When dipping the bells, the temperature of the bath is raised to 850 deg. Fahr., as the cold steel cools it off materially.

In a day's run of 9 hr. 60 bells can be galvanized in this kettle. During such a run 2700 lb. of zinc are usually added, which means that 45 lb. of zinc have gone into the coating of each bell. When not in use, the bath is kept at a temperature of 800 deg. Fahr.

As a matter of economy, the company is about to install a gas-heated oven to preheat the steel before it goes into the galvanizing kettle.

Carnegie Steel Co. to Start Work on Houston Warehouse

Plans are almost completed and bids soon will be asked for the construction of the new warehousing plant of the Carnegie Steel Co. on the ship channel at Houston, Tex. The site, which comprises 100 acres, is advantageously located for its purpose and adjoins the big docks of the Southern Pacific Railroad. The plant will be used not only for the storage, fabricating and distribution of steel products throughout the Texas territory, but also as a transfer terminal for shipments from the mills by water from Atlantic, Gulf and Mississippi River ports for reconsignment by rail.

The construction plans call for eight buildings, all under one roof. Seven will be 80 ft. wide and 480 ft. long, and the other 85 ft. wide and 480 ft. long. The buildings will be of heavy steel frame construction, covered with galvanized sheeting, and in each building will be installed a high-speed electric traveling crane for the rapid handling of the heavy materials. Also there will be massive punches and saws to facilitate the preparation of the heavy steel products for the contractor's specifications.

Auxiliary buildings will house the general offices of the plant, an electric substation and a large store room; while for the comfort of the employees there will be shower baths and locker rooms, and an adequately equipped emergency hospital, with a graduate nurse on duty during all working hours. This latter feature is part of the policy of safety of the Carnegie Steel Co.

A dock on the ship channel frontage of the plant will be 300 ft. long and will accommodate ocean-going steamers, while on the west side of the property there will be a slip 10 ft. deep, for the river and other shallow draft boats and barges which will run into the slip directly beneath cranes in the building. This will permit the unloading of the mill shipments from barges into the warehouse with but one handling.

In this warehouse the company will carry a stock of heavy rolled steel products, wire products, and black and galvanized sheets.

Arc Welding for Building Construction

Westinghouse Electric & Mfg. Co. Stages Demonstration at Pittsburgh—Will Weld Frame of 5-Story Building

MARKING a distinct step in the engineering study of the use of arc welding for building construction, the Westinghouse Electric & Mfg. Co. on July 28 and 29 staged a demonstration in the materials laboratory, Machinery Hall, Carnegie Institute of Technology, Pittsburgh, which is bound to stimulate the interest of steel fabricators, contractors and engineers in the subject, because up to this time nothing quite so comprehensive or informative as this series of tests had been attempted. There was a registration of about 100 men, representing almost that many companies engaged either in the actual fabrication of structural steel or in its erection or design. No fewer than 22 tests were made on a vertical testing machine with a capacity of 400,000 lb.

Engineers of the Westinghouse company for some time have been studying the uses of arc welding and very early in their studies arrived at the conclusion that structural steel offered the broadest field for development. It was not long afterward that it was found that in order to gain all of the advantages of the process beams, columns and joints should be designed especially for welding and that welded sections based on standard riveted practice had little if any merit over riveted members. It was frankly stated by Dr. G. D. Fish, structural engineer, New York, who has been retained by the Westinghouse company as a consulting engineer on arc welding for building construction, that research had not yet gone far enough to disclose the minimum of welding that could be done and insure the same strength as riveted steel and that in the beams, columns and joints for the tests there had been probably a stronger and heavier weld than later studies would disclose had been necessary.

The purpose of the tests was to show the proper construction that should be used when welding is to be employed. Some of the tests were designed to show the strength of the weld itself; others to show the feasibility of lighter construction when the joint is welded than when riveted and others to show a direct comparison of the strength of riveted and welded members of the same size. In view of Dr. Fish's statement as to the strength and weight of the weld in the test pieces, some allowance should be made for the relatively poor showing of the riveted specimens. But on the other side of the picture is the claim that, in spite of the heavy weld, the cost is much less than that for riveting and there is the additional saving in steel through the use of lighter steel sections and the elimination of rivets, clip angles, fish plates, etc.

To Erect 5-Story Building of Welded Frame

It was brought out during the tests that the welding steel was of ordinary mild steel analysis; that the electrodes were not coated and that the welding had not been done by specially trained welders. The American Bridge Co. cooperated with the Westinghouse engineers in the studies and experiments.

Sustaining its engineers in their findings was an announcement that the Westinghouse company was to build two arc-welded structural steel buildings. One of them is to be a one-story building to be used as an engineering laboratory at East Pittsburgh, and the other a five-story mill type building at Sharon, Pa., to be part of the transformer plant. A feature of the East Pittsburgh building is that it will be erected partly of scrap roof trusses, this in emulation of a plan followed in the construction of a building for the Chicago, Burlington & Quincy Railroad at Eola, Ill.

It was brought out that in the steel fabricating mill the arc-welded members will entail a decided change in the process of assembly. The present system includes the design of thousands of angles and bracing plates, all of which, together with the beams, are laid out and punched, before being delivered to the riveting gangs for assembly. In the new process the work will be laid out on the floor, where the arc-welders will supplant a gang of riveters. Structural steel fabrication costs, it was also emphasized, have been reduced to a minimum so that new arc-welded processes will hardly effect savings in the assembly. The savings will come, as stated, with the elimination of angles and braces.

The specimens tested included the following: Cantilever beams supported on typical H-column sections, differences in design being in the size of the landing brackets and reinforcing plates. Typical examples of beam to column joints, some riveted and others welded. Examples of floor beam connections to main girders, hangers, etc.

Among Those Present

Among those present were the following:

G. S. Baldwin, Midland Steel Co., Midland, Pa.; George Ballon, sales manager, J. E. Moss Iron Works, Pittsburgh; E. H. Pacy, president Pittsburgh Welding Corporation, Pittsburgh; A. J. McGough, structural engineer, Newport News Shipbuilding & Dry Dock Co., Newport News, Va.; J. H. Caskey, J. A. Roebling's Sons Co., Pittsburgh; A. W. Bartz, Aluminum Co. of America, New Kensington, Pa.; Leslie Allen, McClintic Marshall Co., Pittsburgh; G. Lewis Taylor, chief engineer, McClintic Marshall Co., Pittsburgh; C. A. Hughes, Truscon Steel Co., Youngstown, Ohio; D. Davis, superintendent, McClintic Marshall Co., Pittsburgh; J. P. Walton, Bridge Department, Pennsylvania Railroad, Pittsburgh. J. H. Edwards, assistant chief engineer, American Bridge Co., New York; George F. Bateson, Truscon Steel Co., Youngstown, Ohio; John R. Harrison, J. E. Moss Iron Works, Wheeling, W. Va.; John N. Marshall, McClintic Marshall Co., Pittsburgh; A. C. Leigh and George F. Wolfe, Dravo Contracting Co., Pittsburgh; G. W. Shem, president Alliance Structural Co., Alliance, Ohio; A. D. Graves, Morgan Engineering Co., Alliance, Ohio; Edward Godfrey, Robert W. Hunt Co., Pittsburgh; H. E. Rossell, Bureau of Construction and Repair, U. S. N., Washington; George L. Christy, Pittsburgh-Des Moines Steel Co., Pittsburgh; C. E. Loos, American Bridge Co., Ambridge, Pa.; Robert MacMinn, McClintic Marshall Co., Pittsburgh; V. W. Coddington, Lakeside Bridge & Steel Co., North Milwaukee, Wis.; H. W. McMillan and F. P. Shearwood, Dominion Bridge Co., Ltd., Montreal; Samuel Fray, Jr., Carnegie Steel Co., Pittsburgh; Kenneth Campbell, Blaw-Knox Co., Pittsburgh; J. R. Conley, Heyl & Patterson, Pittsburgh; H. M. Eastman, Jones & Laughlin Steel Corporation, Pittsburgh; E. E. Shann, Petroleum Iron Works, Sharon, Pa.

E. D. Giberson & Co., 40 Rector Street, New York, have been appointed exclusive representatives in the United States for Ferrostaal G.m.b.h., of Essen, Germany, an export organization dealing with French, Belgian and Luxemburg mills. Ferrostaal is also sole agent in foreign trade for Gutehoffnungshütte, which has mills at Oberhausen (Rhine), Gelsenkirchen and Osnabrück in Germany. Hans Cortner, who was previously in charge of sales with William H. Müller & Co., New York, former representatives of Ferrostaal, continues in the same capacity.

American industrial machinery has the advantage in Mexico over that from Germany and Great Britain, according to a report to the Department of Commerce, Washington. However, German-made industrial machinery gave American machinery a closer race in 1925, for which figures are now available. In 1925 Mexico imported about $2,000,000 more machinery than in the year before. The United States secured in 1925, 81.2 per cent of the total Mexican import trade in machinery for industrial purposes as compared with 83.1 per cent in 1924 and 82.6 per cent in 1923.

Fig. 1—Photomicrograph of White Cast Iron; Light Portions, Cementite; Dark Sections, Pearlite. Specimen etched with 2 per cent nitric acid. Magnified 100 diameters

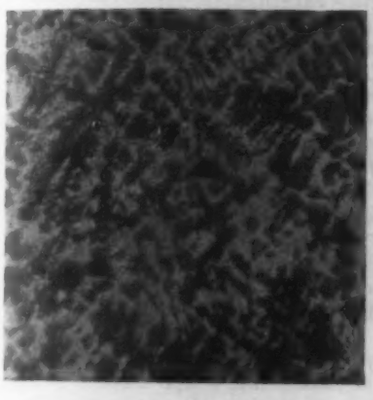


Fig. 2—Network Structure in Gray Iron Cast in Thin Sections; Boundaries, Ferrite; Dark Sections, Pearlite with Graphite Particles. Etched with 2 per cent nitric acid

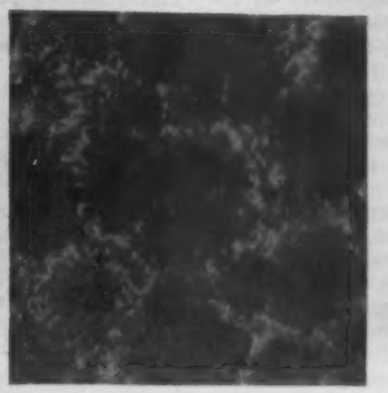
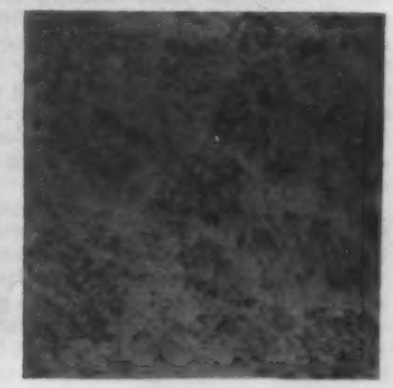


Fig. 3—Same Specimen as in Fig. 2 but Unetched. Dark areas, finely divided graphite. The specimen is magnified 100 diameters



Chilled Iron Resembles White Iron

Discussion of Chilling and Consequent Hardening in Thin Gray Castings Such as Piston Rings

BY R. D. BILLINGER*

THE change of gray iron into mottled or white iron is an extremely fickle one in the case of thin castings. Where this occurs the resulting difficulty in machineability is only too well known.

In this article an attempt is made to show, by means of a photomicrographic study, the similarity between chilled gray iron and typical white iron. The type of castings under consideration is small piston rings of approximately ¼ in. cross section.

Moldenke, Sauveur and Hatfield, who are authorities on the subject, agree that good gray iron castings, which contain about 3 per cent graphitic carbon and 0.40 to 0.60 per cent combined carbon, are best produced by (1) a slow rate of cooling through the period of solidification and (2) the presence of silicon. The latter element causes graphite to separate by lowering its solubility in iron. On the other hand, mottled or white iron is obtained by quick cooling and low silicon content. A high percentage of manganese and a high percentage of sulphur also exert a hardening effect upon thin castings.

In addition to the two principal factors necessary for the production of soft castings, namely silicon content and slow rate of cooling, the total carbon content is an important constituent. For thin castings, pig iron with a total carbon content of 4 per cent is being used with success. This high total carbon naturally allows more graphitic carbon to be formed and insures soft castings. However, this always produces a decrease in the strength of the castings.

The presence of a large quantity of graphitic carbon means soft iron and easy machineability. In large castings the graphite appears in long flakes, due to a slow rate of cooling, time being a necessary factor in the separation of graphite. Excessive amounts of graphite materially reduce the strength of castings.

On the contrary, when carbon is present in the cast iron in the combined form known as iron carbide, Fe_3C, the castings are hard. In a quickly cooled casting, this form of combined carbon is known as austenite and is extremely hard. This is the case in white iron, which is used for making plates for coke conveyors, where a hard surface is desired. To produce this effect a low silicon pig iron, mixed with steel scrap, is used, and a rapid rate of cooling. Fig. 1 shows a photomicrograph of a typical white iron in which the carbon is practically all in the combined state.

The microstructure of good gray iron in thin sections should look similar to that represented in Fig. 2. In such castings only about 0.50 per cent of the carbon is in the combined form and it is uniformly distributed. This network structure makes a strong casting which is also easily machined. The presence of small particles of graphite are more readily seen in the unetched specimen shown in Fig. 3.

Certain errors in the melting or molding practice

*Lehigh University, Bethlehem, Pa.

Fig. 4—Specimen of Mottled Iron Resulting from Chilling

Fig. 5—White Iron Resulting from Oxidation in First Part of Heat

Fig. 6—Mottled Iron Produced by Sudden Chilling of Molten Metal in Ice Brine Solution

produce hard edges and spots in the castings. Photomicrographs of such castings appear as in Fig. 4 or in extreme cases like Fig. 5. This is mottled iron of approximately the same chemical composition as the iron of Fig. 2, but it has been badly treated. The error may have been due to sudden chilling caused by molding sand which had been too wet, or it may have been due to poor melting conditions which result in oxidized iron. Both causes must be investigated because castings of this type are practically impossible to machine, unless given a subsequent annealing to remove hardness.

Many an argument will arise around a foundry as to whether molds, which are too wet, really develop hard castings. On several occasions, however, the writer has observed that wet molds, in which the moisture content of the sand was over 15 per cent, were the cause of hard castings. When molten iron is poured into such a mold, the sudden rate of cooling will not allow sufficient time for the carbon to separate in the form of graphite. An extreme case of rapid cooling was obtained by pouring the molten metal into an ice brine solution. This produced a hard, brittle iron with a microstructure as shown in Fig. 6. The structure is that of mottled iron and its similarity to that of Fig. 4 can easily be seen.

If the metal is oxidized when it comes from the cupola, it is in a state quite conducive to hard castings. This may be caused by a low coke bed in the cupola furnace or an excessive blast. It may also be that the iron was in an oxidized state before melting, due to a poor pig iron from the blast furnace. The remedy, of course, is to use high-grade pig irons and to study the cupola melting practice carefully.

A peculiar case of oxidized iron in the first part of a heat was once noted, while the subsequent metal soon became normal. Upon investigation it was found that the melter had started off his fire with wood from an old barrel of red lead. There was evidently enough red lead present to cause the oxidation of the first metal, and naturally so, because red lead is a good oxidizing agent.

There are a number of processes in which piston rings are first cast in metal molds and then annealed for machining. One annealing treatment for which great claims are made is that of A. K. Schaap, which was described in THE IRON AGE, Jan. 3, 1924, by Prof. Bradley Stoughton. The process provides for heating the castings in a wrought iron cylinder to a temperature above the first critical point, where there is a loss of magnetic properties. During the annealing, the castings are carefully protected from harmful gases. After being subjected to this treatment for a period of less than an hour, thin castings can be bent and twisted like malleable steel.

In general gray iron foundry practice, hard castings are always a source of worry and trouble. Hence the evil effects of chilled cast iron should be avoided by proper melting and molding conditions, rather than subsequently relieved by annealing.

Superiority of the American Boiler*

German Speaker Analyzes Underlying Differences in the Two Countries—Employer and Employee

"AMERICANS have surpassed us considerably in the construction of large boilers, together with complete accessories necessary to maintain them," says Friedrich Von Muenzinger, in an address delivered befor the Society of German Engineers at Augsburg, Germany. He goes on to say "this superiority is especially evident in the construction of boiler accessories, in the execution of large forced draft furnaces, chain grates, under-feed stokers, devices for removal of ashes, automatic feeding and construction of the brick work for large boilers."

But in the case of vertical boilers of less than 1000 square meters (10,760 sq. ft.) heating surface, Mr. Von Muenzinger believes that Germany is considerably in the lead, with regard to the technical shop execution, and that the boilers are more carefully designed than the American types.

He attributes America's lead in the construction of large boilers, in no small degree, to the fact that the boiler industry of the United States has been working under much more favorable conditions than that of Germany. Quoting further from Mr. Muenzinger's address:

Not Altogether Materialistic

"The United States is a rich country and has had a victorious war, its economic status is on the up trend, the electrical power system has been expanded on a large scale, and throughout the country optimism is dominating. However, it would be erroneous to conclude that American progress is based solely on material causes. Spiritual causes have had, no doubt, considerable influence. The American is a master in the handling of employees and workmen and the natural, yet respectful, conduct between superior and employee stands out favorably when compared with European practice.

"This pleasant relationship is facilitated by the fact that the American workman has no class hate and does not regard his superior as his enemy. On the contrary, the American worker has the desire to obtain as quickly as possible, by his ability and education, a higher income and tries by all possible means to broaden and deepen his knowledge. This results in excellent cooperation between employer and employee. Workmen and employees frequently express their pride in belonging to the same establishment.

Buyer and Seller Cooperate

"But between manufacturer and customer there also exists a good relationship. They help each other and this kind of cooperation seems to be typical of the whole country. It avoids much friction and saves an enormous amount of money and time, which we in Germany have to spend. It seems that almost everyone, whether high or low in position, is penetrated by the consciousness of the responsibility of the big task to make America happy and wealthy.

"Several skilfully edited popular periodicals have made engineering activities, so to speak, common property of the people who take active interest in all its achievements; whereas in Germany a considerable part of the population looks upon the world of machines not exactly disparagingly, but patronizingly or even indifferently. The average American, if not an engineer himself, is much more conscious of how much his existence is dependent on the results of engineering. And the interest of the greater public in engineering features is a strong incentive for workman and engineer.

Profits Must Be Made

"At home we find, even in engineering circles, frequently little understanding of the fact that an industrial machine factory cannot flourish and produce effi-

*Partial translation from an article in *Zeitschrift des Vereines deutscher Ingenieure.*

ciently without a reasonable profit. The German tendency to criticize foreign achievements easily overlooks commendable parts and makes shortcomings appear greatly exaggerated. Especially engineers who have never designed or sold machines make this mistake, because they do not know how difficult it is to create something better and to manufacture it with a profit which will carry on the enterprise.

"When technical disputes are treated like religious dogmas, the resulting exchange of opinion does not clarify the situation but makes it more confused. The leading thought in some cases does not seem to be the desire to extinguish differences of opinion and to put into operation the machine which has been ordered. If the young graduate engineer is surrounded by such spirit he attributes importance to subtilities and regards 'skilful tactical procedure,' an expression which has been much abused in the last seven years in politics as well as in business, as the secret of professional activity and business success. The correspondence may be compared, according to volume and contents, with diplomatic notes and is mostly just as sterile.

"The difficult position of the German machine industry is, nevertheless, surprisingly little recognized, even by leading engineers. They do not see that good foreign markets are important for the progress and efficiency of the industry, especially as the home market is weakened by diminished purchasing power.

"The Americans, on the contrary, consider it only natural to aid their home industry in every way. Their willingness to show their factories and power plants and other establishments to foreigners is based on the frequently unconscious, but nevertheless healthy, intention to instill confidence in the efficiency of American industry.

Foreign Information Service

"The great importance of the United States in science and engineering, which will increase rather than decrease, makes a rapid and reliable news service important. At present this service in most of our periodicals is quite defective. The reports either come too late or are submitted by persons who have no professional judgment. Mere translations, of course, do not serve the purpose. A reporter should have at least enough experience to judge whether a foreign publication is important and new, and should understand how to give the essentials concisely and clearly, with German dimension notations.

"Deficient reporting is to be blamed partly on insufficient compensation. So long as payment is made according to space, improvement cannot be expected. High schools and companies should encourage the study of foreign languages, especially English. A higher salary for an engineer who can read English periodicals and reports will be a good investment."

Separating Turnings Saves $20,000 a Year

BY the use of a magnetic device for separating iron and steel from Monel metal turnings, the General Electric plant at Schenectady was able to save approximately $20,000 annually in the disposal of its scrap.

Approximately 70 gross tons of mixed metal turnings were scrapped each year, as no method was known of separating the high-value Monel from the lower-value iron and steel. Mixed metal turnings were sold for an average price of $15 per gross ton, while clean Monel metal turnings brought approximately $300 per gross ton.

Many methods had been tried of separating the two kinds of scrap without success, including the use of magnetism. The magnetic method was not successful because the Monel metal was also picked up by the magnet. Finally, by using a rheostat on the magnetic separator and reducing the current to a minimum, a point was reached where the iron and steel were picked up and the Monel metal dropped.

Separating Iron and Steel Turnings from Those of Monel Metal by Means of Magnetic Attraction Carefully Graduated to a Point of Selectivity

During the cold weather a clean separation was difficult because of oil congealing on the turnings and holding the two metals together. One of the plant workmen suggested that the turnings be dried on large steel plates with fires beneath. This was tried and was found to be successful.

Universal Spindles, Showing Their Large Dimensions. ***The finished weight of the lead spindle is 25,600 lb.; of each mill spindle, 44,000 lb.***

Blooming Mill of Massive Size

54-In. "United" Unit for Homestead—Weighs 1711 Gross Tons —Built-Up Housing

WHAT is undoubtedly the largest and heaviest blooming mill in the world has been completed at the Youngstown works of the United Engineering & Foundry Co. for the Homestead works of the Carnegie Steel Co. This is a 54-in., 2-high, reversing blooming mill. The following paragraphs are from the house organ "United Effort," of the company which made the mill.

With the exception of a few minor parts, all the castings for this mill are of steel. The reproduction of a photograph of the pinion housing gives some idea of the massive construction. The weight of this housing and cap, finished as shown, is 353,000 lb.

Dimensions Give an Inadequate Notion of the Size of This Mill. It is as tall as three high stories and weighs more than 1700 tons

Housing in Six Pieces

Due to the large dimensions necessary for the mill, it was practically impossible to obtain sufficient spread of bed plates, or a suitable arrangement of feed rollers, in a one-piece housing. This was because such a housing, having these parts properly proportioned for this size of mill, was entirely beyond either casting or shipping limits. A built-up housing assembly, therefore, was designed, made up of four post-sections and a top and a bottom separator. This is similar to the successful housing arrangement developed and built by the United company nine years ago for the 206-in., 4-high plate mill at the Lukens Steel Co., Coatesville, Pa. The finished weight of the present housing assembly is about 800,000 lb.

In this housing the top separator carries the two screw boxes and also forms top center blocks for the four housing legs. The bottom separator and center blocks also are cast integrally. The top of this casting is a slide for the roll changing rig. The housing legs are clamped to the center blocks by steam shrunk bolts at the top and by heavy shrink links at the bottom flange. Bolts are used also to assist in securing the legs to the center blocks, but the main reliance is placed upon the shrink links and bolts.

Rolling pressure is transmitted from the center blocks to the legs by an interlocking tongue and groove construction, which has tapered cross keys to prevent lost motion. The bearing areas of the tongues are large enough to reduce all stress below the possibility of any deformation due to rolling pressure. This construction has the following advantages over solid housings:

1.—Ample spread of bed plates was obtained without encountering casting or shipping difficulties;

2.—Casting stresses and defects were made less probable than in solid housings;

3.—Feed rollers were more suitably accommodated;

4.—The built-up housing is heavier all-together than

it was possible to cast in one piece, thus giving an increased and valuable "anvil" effect.

Shoe plates of massive section, with a depth of 6 ft., are provided, with cross ties underneath each end, to which the shoes are keyed. The screwdown is of the spur and bevel gear type, driven by two 150-hp. motors connected in series. An important feature of the screwdown, for which a patent is pending, is the method of adjusting rolls. This consists of dropping one of the bevel gears out of mesh, which can be done by one man in a few minutes from the platform, thereby permitting the lining-up to be done with the opposite screw.

Balancing of the rolls is done in the usual way by a hydraulic cylinder. The weight of the couplings is balanced by an auxiliary cylinder. To reduce roll changing time to a minimum, the housing fillings were specially designed and a motor-operated roll changing rig was provided. With this rig both top and bottom rolls are moved out of the housing at one time, then moved sideways and a new set of rolls put in place to be moved into the housing. This operation is made possible by providing the top roll carriers with legs, which are allowed to rest on the bottom carriers when the keys at the suspension bars are removed and the screws run up, carrying the top riders away from the top roll.

Pinions and Table Rollers

Mounted directly on the foundation, the pinion stand is fully inclosed. The pinions, which have a pitch diameter of 54 in. and a face 72 in. long, have double-cut helical teeth. The spindles are of the improved "Geer" universal type, which is patented.

Entry and front and back mill tables have entirely inclosed drives and gearing. Six entry rollers in the receiving table and 22 in the front and back mill tables, including the feed rollers, are of solid forged steel. The other rollers are of hollow cast steel with forged trunnions. All the gears are forged and have cut teeth. They are arranged to dip into an oil bath. All the drive and side shaft bearings are of the chain oiling type.

Two solid forged rollers on each side of the mill act as feed rollers. Those nearest the rolls are carried in a bore in the housing. The others are carried in bearings on the face of the housing. These rollers are driven by a train of inclosed gears carried in a separate housing on the shoe plates and driven, in turn, from the last roller in the mill table.

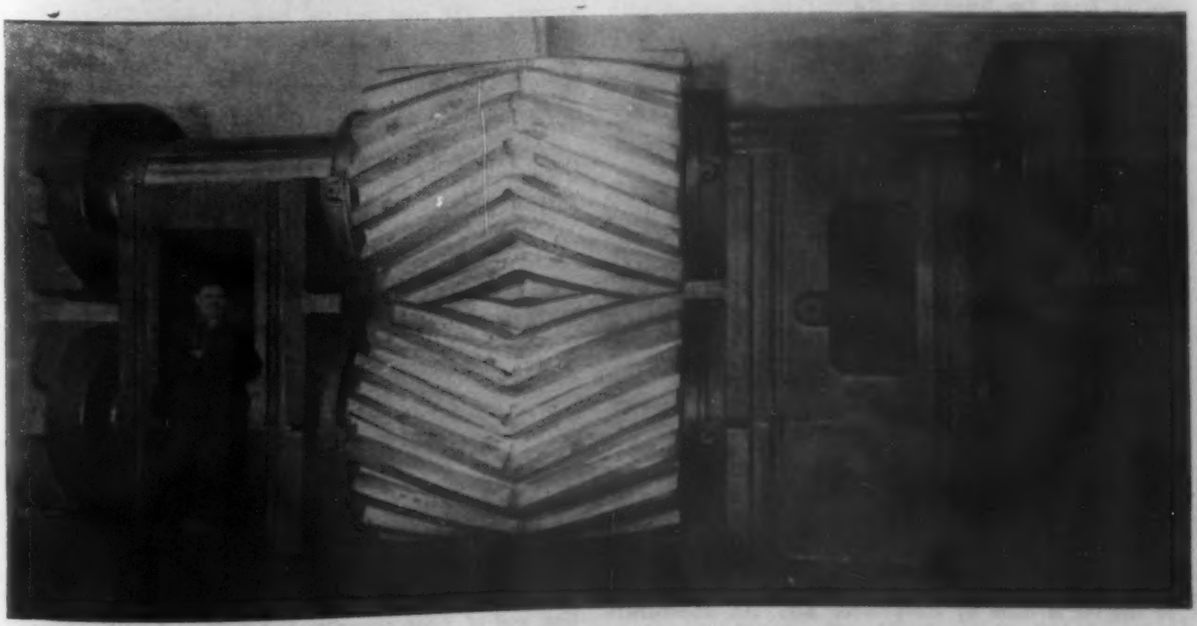
Double Manipulator

One unusual feature in the motor-operated manipulator is the fact that it is double, i.e., on both sides of the mill. It has tilting fingers on one side guard, on both entry and delivery tables. The ingots which it will handle measure 30 by 45 in. and weigh 30,000 lb. each.

Patents are pending for the overhead features of the manipulator. All of the operating mechanism is located on the pinion side of the mill. Each set of tilting fingers is operated by forged steel levers and a crank motion, the latter being equalized to insure horizontal movement of the fingers across the table.

Each side of the guard is operated by two forged steel rams, to which the side guards are so attached that expansion and contraction cannot cause binding of the rams in their slides. The rams are connected with the drive by links and levers. The only direct connection of the manipulators with the tables is at the slides

Pinion Housing and Cap, Finished, as Shown, Weigh 353,000 Lb. The set of pinions appears at bottom of this page



Pinions and Bearings to Transmit the Power for Rolling 30,000-Lb. Ingots 30 x 45 In. in Section. The finished unit, as shown, weighs 244,500 lb.

for the rams. These are well below the top of the rollers and are protected from scale.

Great care was taken in the manipulator design to make all parts of adequate strength and readily accessible for repairs. Ample wearing surface and sufficient lubrication were provided for. Two lubricating pumps, operated by the manipulator mechanism, automatically lubricate all the slides. Each pump holds 1½ bbl. of oil or grease.

Mill Over 38 Ft. High

Some of the outstanding dimensions of the mill are as follows: Total finished weight of mill, including roll-changing device, pinion stand, spindles, carriers and mill tables is 3,833,000 lb. Total finished weight of manipulator is 1,456,000 lb. Height of mill above top of shoe plate is 31 ft. 1¾ in. Total height of mill, including shoe plates and supports, is 38 ft. 0¾ in. The distance across the housing feet is 19 ft. From center to center of shoe plates is 15 ft. 6 in. Diameter of housing screws is 16 in.

Each roll weighs about 97,000 lb., finished. The length of roll body is 120 in., while the lift of top roll is 40½ in.

One Mixer About to Be Tapped

Mixing Blast Furnace and Cupola Iron

German Practice in Making Pipe Employs Large Mixer or Furnace Heated with Oil —Life of Apparatus a Feature

BY H. ILLIES AND A. HESSE-WORTMANN*

FOUNDRIES which get their iron directly from the blast furnace have to reckon with the fact that tapping times are not uniform and that metal is available only at certain times. If, in addition, the molten metal from the blast furnace has to be mixed with metal which has been tapped from the cupola, it is in most cases impossible to get the desired chemical composition because, on the arrival of the hot metal from the blast furnace, the metal from the cupola is already molten. This inconvenience is specially felt in pipe foundries, which need a metal of uniform composition and temperature.

For this reason two 25-ton mixers with flat hearth are operated in a large pipe foundry in Germany. They are tilted hydraulically and heated by oil, and receive all the iron that comes from the blast furnaces. In case the blast furnace does not furnish enough metal, cupola iron is added and any quantity can be tapped at the desired time. The cupola is always put in operation after the metal from the blast furnace has arrived, so that the charge can be chosen to suit the requirements. If only hot material is charged, the consumption of oil is 1.8 to 2.0 per cent of the cost and if cold material is added, the consumption of oil reaches 3 per cent, according to the quantity charge.

The low oil consumption is due also to the perfect construction of the burners and their arrangement and to the use of a hot blast, which enters the furnace at 2190 to 2370 deg. Fahr. The waste gases leave the furnace at only 356 to 390 deg. Fahr. The dispersion of the oil is done by compressed air. An underdraft fan behind the furnace sucks the waste gases alternately through two chambers, which are filled with a special checker work and which serve to heat the air. The furnace is therefore always under the action of suction, which is responsible for the long life of the furnace. The roof and the hearth have a life of 1000 charges and more, while the chambers last much longer. They form a unit with the furnace and tilt with it. By this close connection of chambers and furnace, which are incased in a steel structure, all repairs are avoided.

The chambers are connected with the fan by underground channels and the connections of these with the furnace are water-sealed, so that in the tilted state the burners do not need to be shut off. Platforms are provided around and on the roof of the furnace, which serve for handling the burners, which are always in operation on one side of the furnace, while the other burners are withdrawn, avoiding any repairs. For charging cold material a 20-in. hole is provided in the center of the roof, which is usually closed by a cover. The molten metal is charged through the spout, which serves also for tapping.

In these furnaces not only the temperature of the metal, but especially the composition (silicon and carbon) is regulated, thus assuring pipe of uniform quality. The metal is completely free from gases and never contains more than 0.06 per cent sulphur. The furnaces have been in operation since 1920 and are still running.

A smaller furnace, or mixer, of the same construction and of 2-ton capacity, is being used with success in the production of malleable castings, instead of an electric furnace.

*Amberg, Bavaria.

Centralizes Sharpening of Tools

Automobile Manufacturer Finds That Grinding in One Department Results in Economy and Better Work—Fewer Machines Needed

CENTRALIZING the grinding of cutting tools is a step in the direction of more efficient plant operation that recently has been taken by some of the larger plants in the automotive field, and is a subject that is being given attention by other manufacturers as well.

One of the automobile companies that has centralized its grinding of cutting tools is the Willys-Overland Co., Toledo, Ohio. Formerly every department using cutting tools in the Willys-Overland plant had its own grinding machines and workmen sharpened their own tools. Drills and tool bits were ground by hand. Now all cutting tools are machine ground.

Under the old system there were no standardized methods or specifications for grinding and the work was done in a haphazard way. Machine operators were allowed to grind their tools as they desired and freak grinds were not uncommon. Perhaps an operator at some time got hold of a particularly good drill which produced a larger number of holes than the average drill without regrinding. Then he credited the increase in the number of holes drilled without regrinding to his method of grinding rather than to the quality of the tool, and ground the tool the same way ever afterward. Tools ground by this system or lack of system were shorter lived than those properly ground and were frequently found to be in unusually poor condition.

The centralized tool sharpening department of the Willys-Overland plant occupies a conveniently located room and is equipped with over 50 machines of various types for grinding cutting tools. These include Oliver Instrument Co. drill grinders and Norton, Brown & Sharpe and Cincinnati machines for various grinding operations on reamers, milling and special cutting tools.

There are 17 tool cribs in the plant—one for each department in which cutting tools are used. A workman takes one or more dull tools to the crib and is given in exchange an equal number of sharp tools. If he returns a broken tool he brings with it a tool exchange slip signed by the foreman of his department. By requiring this form to be filled out and signed, the foreman is always kept informed of breakages and if a man breaks a number of tools the foreman makes an investigation to see where the trouble lies. This tool exchange slip for broken tools is the only form that is used in the operation of the centralized tool grinding system.

How Dull Tools Are Handled

The dull tools are placed in bins according to sizes and are taken in trucks to the tool grinding department. Two trucks, one electric and one gas driven, make several trips per day in carrying dull tools from the tool cribs to the grinding department and sharpened tools back to the cribs. The same trucks are also used for handling jigs and fixtures. At the cribs the tools, according to kinds, are placed in sheet metal containers or pans approximately 18 in. long, 4 in. wide and 4 in. deep, those of one size being placed in one pan. Each pan bears the crib number, the tools always being kept separated according to crib numbers during the grinding operations, so that each crib and department always gets back the same tools that are sent to be sharpened.

The pans of dull tools are unloaded on a receiving table in the tool grinding department and from there a man distributes them to the proper grinding machines for sharpening. Receptacles for the tools are provided at the machines, the drills being placed in wooden boxes, the milling cutters on pins on racks, and the reamers in wooden blocks. These receptacles also are all numbered, the tools from each pan being placed in a receptacle bearing a corresponding number. The tools after grinding are placed in steel racks of a standard type, having an upper and lower section, each containing twenty wooden compartments.

After sharpening, the tools are delivered to the adjoining inspection department, where they are given a visual inspection to see if they are properly sharpened and from there they go back directly to the tool cribs from which they came. When the stock of tools of any type runs low, the crib attendant replenishes

General View of the Tool Grinding Department at Plant of Willys-Overland Co. In the foreground is the receiving table, on which pans of dull cutting tools from the various production departments are delivered for sharpening

The Sharpening of Drills and Other Tools Is Done by Men Trained for Grinding Each Class of Tools. They follow established standards

this supply through a requisition on the stock room.

When inserted tooth milling cutters are sent to the tool grinding room, new blades are inserted and the cutter is placed on an arbor on which it is ground. Dull cutters on milling machine gang cutters are taken off and ground and then reassembled in the tool grinding room, so that when they go back to the tool cribs they are ready for use. All special tools are ground according to blue prints.

Uniformly Accurate Grinding Results in Better Work

The centralization of tool grinding at the Willys-Overland plant has resulted in tool economy, as tools last longer than when ground by hit and miss methods employed when each machine operator ground his tools as he saw fit. In addition, accuracy and uniformity of grinding is assured. The work is done by men trained for grinding each class of tools and they follow established standards. In grinding drills they give consideration to proper clearance, top rake and other features in order to bring the tool to the highest point of efficiency. With centralized drilling, the machine operators have only to change tools when they become dull, so that the operator's entire time is spent on production and the company is convinced that it is getting better work by having its tools accurately ground. Another advantage of the plan that has resulted in economies is the reduction in the number of machines required for grinding tools. Under the old system some of the tool grinding machines scattered through the various departments were idle a large part of the time. For example, there were formerly seven machines used in various parts of the plant for grinding thread chasers. Now one machine located in the tool grinding department does the work formerly done by the seven machines.

Crane Bridge Shipped on Four Flat Cars

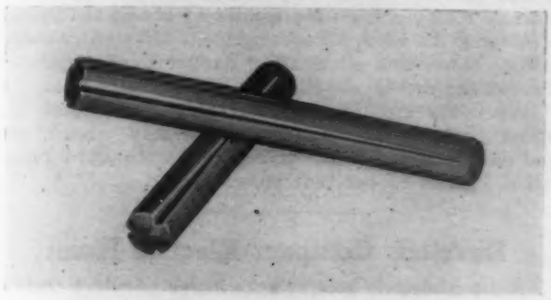
Special arrangements had to be made with the railroad to deliver at the plant of the Mesta Machine Co., West Homestead, Pa., the bridge for a 140-ft. span crane which was built by the Alliance Machine Co. and now is being erected. The bridge is of the single-latticed box-section internally braced type, having a total length of 141 ft. 6 in., a height of 9 ft. 8 in. and a width of 9 ft. 6 in. It weighs more than 100,000 lb. It was fabricated and shipped in one piece, having been loaded on four flat cars. The crane will serve the receiving and shipping yard of the Mesta Machine Co. It has a capacity of 15 tons and has the widest span of any crane in the Pittsburgh district. The total weight of the complete crane is almost 200,000 lb.

This Cage-Type Bridge for 140-Ft. Crane Required Four Cars for Its Transportation

Self-Locking Pins for Use in Fastening Machine Parts

Grooved pins, which like the usual cylindrical or taper pin are for use in securing two parts of a machine or device to each other, but which are designed to eliminate reaming of the drilled holes, are here illustrated. The arrangement of the grooves in these pins, which are being placed on the market by the Groov-Pin Corporation, 45 Thirty-eighth Street, Long Island City, N. Y., is claimed to assure a good self-locking fit of the pin when driven into drilled holes.

The pin is manufactured by grooving a cold drawn



When the Pin Is Driven Into the Drilled Hole, the Three Sectors Press Tightly Against the Face of the Hole

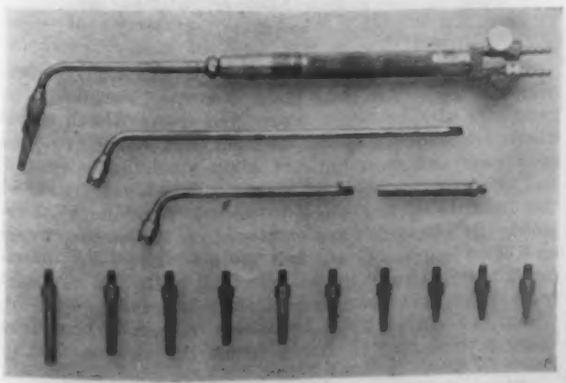
alloy steel cylindrical pin on three sides simultaneously, the grooves being pressed in by special machinery. The steel employed has a tensile strength of 80,000 to 90,000 lb. per square inch.

It will be noted from the illustration that the grooves are made wider at the upper end, gradually narrowing until finally they disappear at a short distance from the end of the pin. Two lengths of groove are provided, one extending approximately 80 per cent of the length of the pin and the other one-half the length of the pin. These grooves form three sectors which are pressed outward in proportion to the depth of the grooves, forming a pin that is tapered from the lower to the upper end. When the pin is driven into the drilled hole, the three sectors press tightly against the face of the hole, making self-locking contact.

At present the pins are available in sizes from 3/16 to ½ in. in diameter and will be manufactured later in sizes up to ⅞ in. in diameter.

Develops Improved Welding Torch

The ultimate gas consumption ratio of 1.01 volume of oxygen to 1.00 volume of acetylene, required for a perfectly neutral flame, is said to be practically at-



The Torch Is Adapted to General Welding Work. Gas consumption ratio of 1.01 *volume of oxygen to* 1.00 *volume of acetylene is said to be attained*

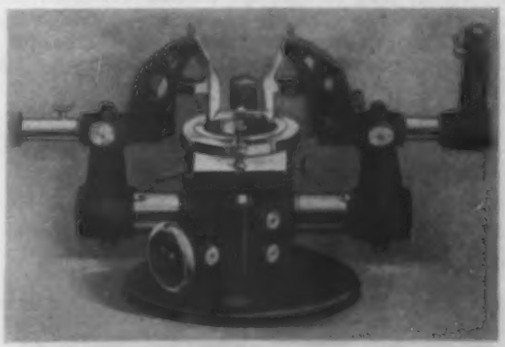
tained in the welding torch here illustrated, when oxygen of 99.5 per cent purity or better is used. With this torch and the high-purity oxygen, an unusually soft, high-temperature neutral flame is claimed to be provided, facilitating the rapid and economical making of high-quality welds.

This welding torch, being marketed by the Air Reduction Sales Co., 342 Madison Avenue, New York, is an improvement of the company's previous torch of similar design. It is designated as the Airco-Davis-Bournonville style 7700, and has been approved by the Underwriters Laboratories. A variety of combinations of extension tubes, mixers and tips is provided to adapt the torch for the full range of welding, from sheet metal to large castings and forgings. Good balance, even when using the longest extension tube and largest tip, is a feature.

The rear end of the torch is a brass forging with large gas passages. The handle, of seamless, knurled brass tubing, is attached to the head and rear ends by four screws. The head is of special bronze and the tip nut is of phosphor bronze. The oxygen and acetylene tubes are of seamless drawn brass, heat-treated, and are silver soldered to the head and rear end. Three extension tubes, 6, 9 and 16 in. long, are provided. These tubes fit either mixing head, and may be used with any size tip from the smallest No. 1 to the largest No. 10. The rear end of the torch is straight. Hose connections are for 5/16-in. hose, and quick-acting needle valves are regular equipment. The length of the torch without mixer, mixer nut and extension tube is 11½ in. and the weight 19 oz. The weight complete, with 8-10 mixer, 9-in. extension tube and No. 10 tip is 30 oz. The acetylene capacity is 2.4 cu. ft. per hr. with the No. 1 tip and 89.9 cu. ft. per hr. with the No. 10 tip.

Attachment for Zeiss Optimeter Facilitates Inside Measuring

An attachment for the Carl Zeiss Optimeter, intended to facilitate the making of inside measurements on ring and snap gages, ball races and other pieces, is being placed on the market in the United States by the George Scherr Co., 142 Liberty Street, New York.



Optimeter Arranged for Checking Ring and Snap Gages and Other Pieces

The arrangement of the attachment may be noted from the illustration. The left-hand bracket is clamped to the tailstock, which has coarse and fine adjustment, while the right-hand bracket is attached to the optical tube. These brackets contain the pivots for the adjusting and measuring jaws. One end jaw bears against the tailstock, and one end jaw against the feeler of the Optimeter tube, graduated to 0.00005 in., while the opposite ends of both jaws are brought in contact with the bore of the ring or gage.

Since the Optimeter is arranged for measuring by comparison, the nominal diameter must be previously set by a master gage. This setting may be made by a snap gage built up from gage blocks or merely by such blocks. In the former case, the outside feeler-points for measuring the bore are set to zero by the faces of the snap gage. In the latter a gage block equal to the nominal size less the sum of the lengths of both feeler-points is placed between the inside points and then the scale is adjusted to zero.

The ring or snap gage may be placed on the table, which is raised until the measuring points are within the bore, when the deviation of the size of the gage from the nominal size may be seen in the Optimeter tube. It is necessary to move the ring gage until the

maximum diameter has been located. This is accomplished by means of the compound table, the lower slide of which floats in balls in the direction of the measuring pressure, while the upper is traveled crosswise by means of rack and pinion. The table is also adjustable vertically to check the size of the bore at various heights or for taper. A swivel motion of the table is also provided, to obtain correct adjustment to snap gages built up from gage blocks.

This motion does not interfere with the measuring action. This arrangement permits setting to a minimum diameter across the opening of the snap gage. Standard snap gages may be placed on the table, and readily inspected for size and parallelism of the measuring faces. Both the feeler-points and jaws are readily interchangeable, which is stressed as an important feature because special feelers and jaws are used for small bores and for such work as ball races. It is stated that a careful operator will readily work to an accuracy of 0.001 mm. or 0.00004 in.

The range of the inside attachment is: Maximum height of ring gage, 1¼ in.; maximum diameter of ring gage, 3½ in.; minimum diameter of ring gage (heavy arms), 1 1/64 in., and minimum diameter of ring gage (light arms), 35/64 in. The range of the standard horizontal instrument for outside measurements is 2⅛ in. in height and 215 mm., or 8½ in., in length.

New Electric Flue Welder

A new electric flue welder, developed by the Swift Electric Welder Co., Detroit, and being marketed by Joseph T. Ryerson & Son, Inc., Sixteenth and Rockwell Streets, Chicago, is shown in the accompanying illustration.

This machine was designed for safe-ending flues and also welding operations in reclaiming small pieces. With suitable dies it can be used for any kind of butt welding, and when not engaged on its regular work, the machine may be used for welding bar stock or for other work. The capacity of the welder is for boiler flues and superheater tubes up to 6 in. in diameter.

It is stated that the machine is flash proof, thus assuring longer life to the windings and bearings. Alinement is assured by having all moving surfaces slide on hardened and ground steel plates. The clamps are of improved flash and slag proof adjustable type, sliding on hardened steel guide plates to minimize wear. Foot-operated air cylinders are incorporated so that the operator may have his hands free for handling the work. Three-fourths of a cubic foot of air at approximately 80 lb. pressure is required for the welding operation.

The Machine Has Capacity for Boiler Flues and Superheater Tubes Up to 6 In. in Diameter. With suitable dies it can be used for a variety of butt welding

Two pair of dies are used for each set, one set of dies handling work on both 2-in. and 3-in. tubes. On the larger work a separate set of dies is required for each size of flue. The dies are water-cooled and have hardened steel guide plates. The pressure cylinder provided for pushing up the work may be connected to either a hydraulic accumulator, Oilgear pump or a hand-operated oil jack. Pressure of about 800 lb. per sq. in. is required for 6-in. tubes, and for smaller work proportionately less. The volume required is 0.6 gal. per welding cycle.

The welder is operated by a remote control system, consisting of a contactor panel separately mounted and operated from a lighting circuit by a push button switch on the welder. By this method the power is entirely removed from the welder except at the instant of making the weld, an arrangement stressed as economizing power and eliminating danger to the operator. The welder can be supplied for either 220, 440 or 550-volt primary circuit and preferably 60 cycles. The primary circuit is air-cooled; secondary circuit, dies and die blocks are water-cooled. The standard rating is 150 kva. at 85 per cent power factor.

Develops Compact Electric Hoist

A 1-ton electric hoist, the features of which include compactness, low head room and provisions for safe operation has been brought out by the Harrington Co., Seventeenth and Callowhill Streets, Philadelphia.

The Drive Is From a 2½-Hp. Series Wound Universal Motor Through a Simple Gear Train. The distance from the suspension hook to the bottom hook is 23½ in. minimum

The hoist is driven by a 2½-hp. universal series-wound motor. The gear train is simple, consisting of two pairs of spur gears, worm and worm wheel, all of which are inclosed in an oil-tight compartment. The spur gear and worm are of alloy steel, heat treated, and the worm gear is of bronze. The main frame of the hoist is of one piece to assure permanent alinement. Ball bearings are employed on the motor, worm and other parts. Gears and main bearings are lubricated automatically by means of oil bath and circulating system, and the worm is entirely immersed in oil. Oiling is required but a few times a year, light grease being poured into the main frame through one filling hole.

The ratio of the worm gearing makes it self-locking, and the load cannot overhaul the motor through the gearing. A brake is provided on the motor shaft for quickly stopping the motor. This brake operates automatically when the hoist is started and stopped, and adjustments may be made from the outside. The hoist has both up and down limits to prevent overtravel.

The motor is ventilated by a fan on the armature shaft. Both the motor and controller are covered to prevent the entrance of moisture from above. Rope-

operated drum controller is regular equipment. Control handles are of pull type with pointed ends which are self indicating for direction of hook movement. Automatic controller for remote control by push button can be furnished. This is electrically and mechanically interlocked to prevent damage from pushing both buttons at once. Because of the motor construction only two feed wires are necessary.

The hoisting speed at no load is 25 ft. per min., and at full load is 14 ft. per min. The lowering speed is 25 ft. per min. The minimum overall distance from the suspension hook to the bottom hook is 23½ in. The hoist may be suspended by hook, clevis, or trolley, and is arranged for convenient change from one type of suspension to the other. The bottom hook is of ball-bearing type to facilitate rotation and placing of loads. For hook suspension two styles of forged hooks can be furnished and several types of lugs are available for lug suspension. Plain ball-bearing trolleys and a variety of combination plain and geared trolleys can be furnished. The gross weight of the hoist is 290 lb.

Continuous Recuperative Heating Furnace

A continuous recuperative furnace for heating billets is being built by the Ludlum Steel Co. for its own use at its plant at Watervliet, N. Y. In the recuperative equipment, the company is using its own heat and scale-resisting material.

Assembly of Tubes in the Flue Chamber of the Recuperator

The illustration shows the tubes and process of assembling them in the flue chamber of the recuperator under the furnace. These tubes are 4 in. outside diameter by 5/16 in. wall and are 16 ft. long. The 27 tubes are welded to manifolds on both ends by oxy-acetylene. Air from a blower at 5 oz. pressure is passed into the tubes from a box-shaped manifold and, after absorbing heat from the hot gases surrounding the tubes, it is discharged through a smaller manifold at the opposite end into a blast line leading to the furnace. The temperature of the air reaching the burners is about 700 deg. Fahr. and the temperature of the flue gases does not exceed 1300 deg. Fahr., because the furnace is of a continuous type in which part of the heat of the hot gases is absorbed in the chamber of the furnace by incoming cold material. It is equipped with two oil burners of the flat venturi type with atomization by compressed air. It heats 70 tons of 2-in. sq. billets per 9-hr. shift to a rolling temperature of 2100 deg. Fahr. The billets are pushed through the furnace by a mechanical pusher.

Better Fuel Economy and Production

Metallic recuperators have been regarded for some time as a desirable type of fuel economizer for heating furnaces. With the special type of rustless iron used in this furnace, the company believes that production and fuel economy have been greatly increased.

Metals from Secondary Sources Increased in 1925

The recovery of certain metals from secondary sources in 1925 is reported to the United States Bureau of Mines as valued at $243,570,700, which is $42,992,100 more than in 1924. The increase in the value of all metals, according to J. P. Dunlop, who compiled the figures, was due both to larger quantities of several kinds recovered and to higher average prices of all the metals in 1925.

Although the statistics indicated a decline in brass, this is more apparent than actual owing to a better classification of alloys, which increased the quantity of bronze and other alloys containing copper. The quantity of scrap copper, treated at regular refineries treating ore, showed an increase of about 21,800 tons, and that treated at secondary smelters and used by foundries increased more than 20,400 tons. The copper in alloys other than brass showed an increase of nearly 12,000 tons, while the copper content of brass recovered decreased 22,200 tons.

Lead in alloys in 1925 apparently was about the same as in 1924, but secondary pig lead increased about 22,000 tons. Zinc recovered by redistillation, sweating, and remelting increased over 2500 tons, owing entirely to an increase of about 4000 tons of redistilled zinc. There was an increase of nearly one-third in the quantity of zinc in alloys other than brass. In addition to the recoveries of zinc as metal and in alloys, large quantities of zinc dross and skimmings are used for lithopone, zinc dust, zinc sulphate, and zinc chloride.

The recoveries of tin were about the same in 1925 as in 1924, but the value was considerably higher in 1925. The quantity of tin plate clippings treated in 1925 increased about 6000 gross tons, and more than 1000 tons of old tin cans were detinned. Nearly 25 lb. of tin was recovered per ton of cans and about 34 lb. per ton of tin plate clippings.

Secondary antimony increased more than 1400 tons and the value was 87 per cent more than in 1924. The recovery of secondary aluminum showed the very large increase in 1925 of 7350 tons, and that in alloys, mainly No. 12, increased nearly 10,000 tons. Secondary metals of certain classes recovered in the United States in 1924 and 1925 were as follows in net tons:

	1924	1925
Copper, including that in alloys other than brass	196,500	250,600
Brass scrap remelted	274,000	242,200
Lead as metal	90,400	112,420
Lead as alloys	114,100	114,460
Zinc as metal	58,886	61,420
Zinc in alloys other than in brass and in chemical compounds	10,500	13,300
Tin as metal	7,700	7,950
Tin in alloys and chemical compounds	23,600	23,000
Antimony as metal	90	1
Antimony in alloys	9,314	10,839
Aluminum as metal	10,350	17,700
Aluminum in alloys	16,650	26,200
Nickel as metal	114	191
Nickel in nonferrous alloys and salts	2,126	2,109

The largest horizontal waterwheel generators ever built, consisting of two 45,000 kva. units, will be supplied the Southern California Edison Co. by the Westinghouse Electric & Mfg. Co. The units will be totally inclosed and complete with suitable direct connected exciters and accessories. The total weight is about 600,000 lb. each, the overall width and height respectively 25 ft. and 23 ft. and the length of the generator itself about 14 ft.

A bibliography on the literature of lubrication, in preparation for three years, is shortly to be issued by Nathan Van Patten, librarian Queen's University Library, Kingston, Ontario, Canada. The effort has been to include a reference to every important article on the chemistry, testing and use of lubricating oils appearing in the technical journals of the world or in book form since 1900. It will take the form of a book of 200 pages 6 x 9 in. in size and sell at $5 per copy.

STORAGE IN TRANSIT DENIED

Commission Decides Against Transit Privileges for Pipe at St. Louis

WASHINGTON, Aug. 3.—In a decision made public last week the Interstate Commerce Commission held that the failure of railroads to provide storage in transit on iron and steel pipe and fittings shipped from points east of the Mississippi River to destinations in Kansas, Oklahoma, Texas, Louisiana and Arkansas, is not unreasonable or unduly prejudicial. The commission ordered dismissal of the complaint, known as the case of the Western Petroleum Refiners Association, et al. The complainants included three associations of oil and gas producers, an association of purchasing agents of oil producing companies, three corporations selling oil well supplies, including pipe, and two corporations manufacturing pipe in the Pittsburgh district.

The commission held that the evidence did not establish that the storage-in-transit or other transit arrangements on other commodities unduly prejudiced the complainants in any manner. It was stated that most of the commodities are articles of food and the transit service a stop-over to complete loading or partly to unload. None of the commodities, it was pointed out, could be used by complainants in place of pipe and fittings.

Says St. Louis Should Not Be Favored as Against Other Distributing Centers

It was declared that the complainants had given no reason why St. Louis should be favored and other points, such as other Mississippi River crossings, Tulsa, Okla., Fort Worth, and Dallas, Tex., should not have the benefit of the arrangement.

The commission said it would be impracticable to consider the question as limited by the complainants, but that it is a more general one and concerns the requirement of the carriers to establish storage-in-transit arrangements on pipe and fittings to meet what complainants contended are vital needs of the oil industry, without discrimination between points.

Supply Centers at 100 Points in Mid-Continent Field

The opinion pointed out that in the Mid-Continent field there are over 100 points at which one or more of the various supply companies carry more or less complete stocks of pipe and fittings. They sell, it was pointed out, at list prices on deliveries from their supply houses in the field and at 5 per cent less on shipments direct from the producing mills. The oil companies, it is explained, are able to make satisfactory purchases and secure satisfactory deliveries to meet their requirements in established fields, but contended that in the development of new fields their needs are so uncertain that they cannot be anticipated long in advance and that the present system of distribution is uneconomic and costly.

The intimation was made that the oil companies might be able to secure mill prices from St. Louis and would not have to keep so large an investment in pipe and fittings as at present.

At this point the decision said:

> The record is somewhat indefinite as to the quantity of pipe that would have to be kept in storage at St. Louis or as to the cost to the pipe-producing or supply companies in maintaining stocks and acquiring storage space. These complainants do not state that they would maintain stocks at St. Louis, but they intimate that in case the supply or pipe-producing companies did not avail themselves of the arrangement, they might enter into a cooperative arrangement looking to the maintenance of a general stock at St. Louis. Three supply companies now maintain storage yards at St. Louis and they favor establishment there of a storage-in-transit arrangement. One of them now stores at and distributes from St. Louis in considerable quantities, but it secures its supply of pipe largely by barge.

Contend Plan Would Permit Shipment of Mixed Carloads

Among the advantages cited for storage-in-transit in St. Louis were quickness of delivery and avoidance of back hauls. The complainants estimated the time of delivery at Oklahoma points as approximately nine days less from St. Louis than from the Pittsburgh district. The decision said, however, that the figures upon which the estimate is based are not shown to be representative. Other evidence, it was stated, shows that pipe moves from the Pittsburgh district to St. Louis in about four days and that such delay that occurs is usually in the vicinity of the oil fields.

Another advantage which the complainants said would result from the arrangement sought would be the ability to ship from St. Louis a car of mixed sizes of pipe. It was added that producers in the Pittsburgh district ship only one size to a carload and that in some cases it is desired to secure delivery in the field of a car of three or more sizes.

Point to Difficulty of Policing Transit Arrangement

The railroads and the interveners, including boards of trade and other organizations in Texas, pointed out the cost and trouble of policing the transit arrangement and declared that obviously it would be impracticable to distinguish between pipe coming into St. Louis by rail and barge or between pipe coming in by railroad from different plants to the same manufacturer. The Texas interveners also declared that the establishment of the arrangement asked at St. Louis would be injurious to the companies engaged at Texas points in the sale of pipe and fittings, as it would give St. Louis jobbers an advantage of 34c. per 100 lb. over Texas jobbers in reaching Texas markets. The complainants had offered to pay a transit charge of 2.5c. per 100 lb. to cover any necessary switching at St. Louis. The railroads said the cost would be greater than this figure.

Suspends Proposed Cancellation of Storage-in-Transit Arrangements

WASHINGTON, Aug. 3.—The Interstate Commerce Commission last Saturday announced a suspension from Aug. 1 until Nov. 29 of schedules which propose to cancel the present storage-in-transit arrangements at Houston, Galveston and other Texas ports, which provide that iron and steel articles in carloads, moving from Atlantic Seaboard or Southeastern territories to Texas destinations, may be stored in transit for a period not exceeding one year at Texas ports and then be reforwarded to destination on the basis of the through rate from the point of origin to destination, plus a 2c. per 100 lb. transit charge. This would have the effect of applying higher combination rates.

Fifth Class Rates Between Pittsburgh and Ohio Points Unreasonable

WASHINGTON, Aug. 3.—Fifth class rates on iron and steel articles in carload lots between the Pittsburgh district and other points, on the one hand, and Ohio points, such as Cleveland, Akron and Canton, on the other, were held to be unreasonable to the extent that they exceed aggregates of intermediate commodity rates over routes indicated, in a decision by the Interstate Commerce Commission made public last week. The opinion covered numerous complaints, and was known as the Firestone Tire & Rubber Co. case. The commission pointed out that the situation presented was substantially similar to that considered in the American Shipbuilding Co. proceeding, upon which the complainants mainly relied. They showed that the rates were higher than commodity rates for comparable or greater distances maintained by the railroads between points in the same general territory.

In finding that the rates were unreasonable to the extent indicated, the commission made exception as to the shipments which moved over the lines of the Pennsylvania Railroad to or from Cleveland, Akron, Canton and points taking the same rates. Concerning these shipments it was held that the rates were unreasonable to the extent that they exceeded the contemporaneous lower aggregate of the intermediate commodity rates by way of either Youngstown or Alliance, Ohio. Reparation was awarded where excessive rates were paid.

TO DISCUSS STEEL AND COKE

Mining Engineers Prepare for Fall Meeting at Pittsburgh—Many Interesting Topics

Elaborate arrangements are being made for the 134th general meeting of the American Institute of Mining and Metallurgical Engineers at Pittsburgh, Oct. 5 to 9. The headquarters will be at the Hotel Schenley and technical sessions have been arranged for every day but Thursday, Oct. 7, when a boat trip up the Monongahela River will be taken with visits through the National Tube Works at McKeesport and the plant of the Carnegie Steel Co. at Homestead.

On Tuesday, Oct. 5, after registration in the morning, there will be a session devoted to the combustibility of coke in the form of a round table discussion and another session on open-hearth furnaces which will be a continuance of other conferences on this subject which the mining engineers instituted a year or two ago. In the afternoon of the same day these two sessions will be continued. Wednesday, Oct. 6, will be devoted in the afternoon to a technical session on coal and coke and another one on iron and steel. For Friday morning, Oct. 8, the sessions on coal and coke and on iron and steel will be continued and there will also be one on mine ventilation and another on natural gas. On the afternoon of that day the Bureau of Mines will stage a number of demonstrations, ending with a coal dust explosion in the mine. Saturday, Oct. 9, will be devoted to group trips to points of interest and to industrial plants.

A partial list of the papers which have been promised for the preceding sessions follows:

A general description of the Pittsburgh coal bed in Pennsylvania, Ohio and West Virginia, prepared by a special committee of the Pittsburgh session.

A description of the methods of mining the Pittsburgh bed, prepared by a similar committee.

"The Coal Mining Plant of the Buckeye Coal Co., Nemacolin," by Chester M. Lingle.

"X-Ray Studies of Coal," by Ancel St. John.

"State Coal-Mining Laws Concerning Mine Ventilation," by J. A. Garcia.

"Appraisal of Coal-Property Values," by H. M. Chance.

"Occurrence of Fire Damp in Bituminous Coal Mines," by Frank Haas.

"Mine Air Flow," by G. E. McElroy.

"Factors in the Ignition of Methane and Coal Dust by Explosives," by G. St. John Perrott.

"Application of Kutter's Formula to Gases," by F. Ernest Brackett.

"Optical Temperature Measurements in the Open-Hearth Furnace," by B. M. Larsen and J. W. Campbell.

"Progress Report on the Effect of Open-Hearth Processes on Refractories," by F. W. Schroeder and B. M. Larsen.

"The Specific Efficiency of the Blast Furnace," by Richard Franchot.

"Developments in the Wrought Iron Industry," by James Aston.

"Removal of Sulphur in the Open-Hearth Furnace," by C. H. Herty, Jr.

"The Basic Open-Hearth," by R. L. Cain.

"The Open-Hearth Charge," by P. H. Schaeffer.

"Rimming Steels," by H. D. Hibbard.

"Composition of Blast Furnace Slags," by R. S. McCaffery.

"Use of Iron and Steel Scrap in Blast Furnace," by W. C. McKee.

"The 14,000-ton Steam-hydraulic Forging Press at Charleston, W. Va.," by W. J. Priestley.

"Tests on Galvanized Sheets," by H. A. Stacy.

Besides this general meeting the board of directors has arranged for a regional meeting at Denver, Colo., Sept. 20 to 24, under the auspices of the Colorado section and another regional meeting at Spokane, Wash., during the same week through the cooperation of some of the western sections. There are also the sessions of the Institute of Metals Division at Detroit, held in conjunction with the regular annual convention of the American Foundrymen's Association the week of Sept. 27.

Ohio Foundrymen to Meet at Cincinnati

The annual convention of the Ohio State Foundrymen's Association will be held at Hotel Sinton, Cincinnati, on Thursday and Friday, Sept. 16 and 17. The morning of Thursday will be given over to committee meetings, registration and getting acquainted. Thursday noon luncheon will be served to the group, following which there will be talks and discussions on problems of special interest. At 7 p. m. Thursday the annual convention banquet will take place in the ball room of the hotel. During and following the banquet those present will be the guests of the Cincinnati foundrymen.

On Friday morning the delegates will visit one of the prominent industrial plants of Cincinnati. Luncheon will again be served on Friday noon at the hotel, and the afternoon will be devoted to the remainder of the business discussions and to the election of officers and directors.

California Reinforcing Steel Institute

SAN FRANCISCO, July 31.—Ralph W. Chrouch, formerly secretary-manager of the Builders' Exchange, Fresno, Cal., has been appointed secretary of the California Reinforcing Steel Institute, and offices have been opened by the institute at 311 Call Building, San Francisco, and 524 W. M. Garland Building, Los Angeles. Prior to his secretarial work at Fresno, Mr. Chrouch for twelve years was in the United States Navy.

The membership of the California Reinforcing Steel Institute includes practically all of the concrete bar jobbers in California who have warehouse stocks of American rolled new billet steel. It was organized last January at the second annual conference at Del Monte of the Iron, Steel and Allied Industries of California, at which meeting C. Louis Meyer, treasurer of the Concrete Reinforcing Steel Institute, Chicago, invited the concrete bar jobbers of California to become members of the national association. Practically all of them did so, but it was decided that conditions on the Pacific Coast warranted a local organization independent of the national institute, but one which would be closely affiliated with it on all major points.

Inland Steel Shows Gain for Second Quarter

The Inland Steel Co., Chicago, revealed net profits of $1,792,324 for the three months ended June 30 after interest, taxes, depreciation and depletion, equal after preferred dividends to $1.36 a share on common stock. This compares with a net profit of $1,540,909 or $1.15 a share on the common, in the first quarter, and $1,230,813 or 89 cents a share in the second quarter of 1925. For the first half of 1926 the net profits amounted to $3,333,233, equal after preferred dividends to $2.52 a share on the common or two cents a share in excess of the annual dividend requirements on the junior issue for the full year. This compares with a net of $2,259,385, or $1.61 a share in the first six months of 1925.

Heavier Sales of Leather Belting

Domestic sales of oak leather belting in June, as reported by the Leather Belting Exchange, which represents about 60 per cent of the total product, amounted to 346,739 lb., valued at $595,351, or an average of $1.72 per lb. This records a moderate gain over the figures for May, at 337,042 lb., valued at $556,568, or $1.68 per lb. It is less, however, than the figures for June, 1925, when the total was 367,583 lb., valued at $642,535, or an average of $1.75 per lb.

AGAIN ATTACK J. & L. SCALE

Complaints Filed by Jones & Laughlin Corporation and Cleveland Chamber of Commerce

WASHINGTON, Aug. 3.—Renewing attacks on the Jones & Laughlin railroad rate scale on iron and steel products, complaints were filed last week with the Interstate Commerce Commission by Luther M. Walter and William W. Collin, Jr., attorneys, representing the Jones & Laughlin Steel Corporation, and by the Cleveland Chamber of Commerce, through Transportation Commissioner Frank H. Baer. The Jones & Laughlin complaint charges that the railroads have filed tariffs under the schedule which are prejudicial against the Pittsburgh district and favorable to the Chicago district. Request is made for a hearing and investigation, together with an order canceling the rates and putting into force "such rates as the commission may precribe as just, reasonable, non-discriminatory and non-prejudicial."

Rates Said to Be Prejudicial to Cleveland

Of a quite different character, the complaint of the Cleveland Chamber of Commerce charges that prior to the operation of the Jones & Laughlin scale, rates from Cleveland to the destination territory were lower than those from such points of origin as Youngstown and Pittsburgh, while under the scale the rates in general are less than those formerly in effect from Youngstown and Pittsburgh, and the only changes made in rates from Cleveland are those made necessary by reductions in rates from Youngstown which would otherwise have resulted in violations of the long-and-short-haul clause.

By way of illustration, the Cleveland chamber's complaint compares past and present rates. To Indianapolis, for instance, it is shown that before the scale went into effect the rates were 28c. from Cleveland, 30c. from Youngstown and 31c. from Pittsburgh, a difference in favor of Cleveland of 2c., as related to Youngstown, and 3c., as related to Pittsburgh. Under the new scale, it is stated that both the Cleveland-Indianapolis and Youngstown-Indianapolis rates are the same, 27c., while the Pittsburgh-Indianapolis rate is 29c. It is charged that the new structure of rates is unreasonable and prejudicial against Cleveland iron and steel manufacturers. Hearing and investigation, with the establishment of reasonable rates, are requested.

Rates Applying East of Indiana Higher Than J. & L. Scale

It is pointed out in the Jones & Laughlin brief that the scale applies to a broad destination territory, including St. Louis and points in Indiana and Illinois, and that since all points in the destination territory are distant from Pittsburgh 300 miles or more, the rates from Pittsburgh ordered by the commission are based on that portion of the commission's steel scale applicable to distances of 300-640 miles. The commission's scale, it is stated, for such distances makes rates that either approximate, equal, or exceed the fifth class scale prescribed by the commission in the Central Freight Association scale case.

Illustrative rates per 100 lb. under the two scales are set forth in the complaint as follows:

Distance (Miles)	Effective Steel Scale	Fifth Class Scale	Per Cent Relation, Steel Scale to Fifth Class
301-320	26c.	29.0c.	89
401-420	31c.	32.0c.	97
501-520	36c.	35.5c.	102
601-620	41c.	38.5c.	106

It is charged that the railroads have not published rates in accordance with the commission's scale from Pittsburgh to stations in Central Freight Association territory east of the Ohio-Indiana State line. The maximum distance to such stations, it is declared, is approximately 300 miles, while the rates to the territory mentioned are generally on the fifth-class basis from Pittsburgh and substantially exceed the commission scale:

The relation between the class rates in force and the lower rates that would result from application of the scale, it is stated, is illustrated by the following comparisons:

Distance (Miles)	Effective Fifth Class Scale	Steel Scale	Per Cent Relation of Two Scales
76- 80	17.5c.	13.5c.	130
101-110	20.0c.	15.5c.	129
151-160	23.0c.	18.0c.	128
201-210	25.5c.	20.5c.	124
251-260	27.5c.	23.0c.	120

J. & L. Scale Rates Declared Too High for Long Distances

The complaint says the commission's scale is constructed on a principle that makes rates for long distances unduly high in proportion to shorter distances and that the graduation or progression of the scale is such that, for illustration, the 601-620 mile rate is double the 201-210 mile rate.

The railroads' rates from Pittsburgh to St. Louis and to points in Indiana and Illinois, it is stated, are on a substantially higher level than from Chicago and other Indiana and Illinois producing points to St. Louis. This is held to handicap seriously producers in the Pittsburgh and surrounding territory in competing with mills in the Chicago and surrounding territories.

Pittsburgh-St. Louis Rate Not in Prescribed Relationship to Chicago-St. Louis Rate

"The distance from Chicago to St. Louis is 284 miles, for which the rate prescribed in the commission's steel scale is 24.5c.; the distance from Pittsburgh to St. Louis is 612 miles, for which the scale rate is 41c., or 167 per cent of the scale rate from Chicago to St. Louis," says the complaint. "The rate actually published by defendants is 22c. from Chicago to St. Louis; and the relationship prescribed by the commission would make the rate from Pittsburgh 167 per cent of said figure, or 36.5c. to St. Louis instead of the 40.5c. rate actually published." This condition is cited as typical of the entire rate structure under the scale, and it is contended that preference is given to Chicago by making rates lower than the scale prescribed and rates from Pittsburgh are made higher than the scale calls for.

It is also declared that all articles in the manufactured iron and steel list take a common rate but that the railroads have failed and refused to differentiate between the high grade and the low grade, between the finished and unfinished and between the heavy-loading and light-loading by dividing them into two or more groups taking different rates.

Simplified Practice Movement Spreading Abroad

WASHINGTON, Aug. 3.—Because the success of the elimination of superfluous items depends on the cooperation of every person in industry, Ray M. Hudson, chief of the division of simplified practice, Department of Commerce, in a statement last week, declared that it is significant that 686 trade associations of manufacturers, distributers and consumers have accepted 57 recommendations adopted by industries up to the close of the second quarter of 1926. It also was stated that nine other associations had accepted recommendations in "principle" even though not directly connected with the industries affected. More than 2775 individual firms had accepted the recommendations. This interest was further indicated by the fact that some 200,000 copies of simplified practice recommendations have been purchased by corporations, trade associations and others for the information and guidance of engineers, buyers, consumers, etc.

Among the surveys nearing completion are those dealing with hollow doors and trim, steel sash, metallic cartridges and piston rings.

"Foreign interest in simplified practice as a method of waste elimination and as one remedy for some of the economic problems faced in other lands has increased steadily," said Mr. Hudson. "Italy has an organization, recently formed, to study and make public the work of simplified practice. The British rubber

and tire manufacturers, through their research association, have evinced a lively interest in the progress in the United States. Many requests have come from other interests in England, Australia, South Africa, Holland and Austria. Leading engineering and scientific publications in the latter two countries as well as in France and Italy have devoted considerable attention to the significance of the simplified practice movement."

Proposes Formula to Apply to Duties on Indian Iron

WASHINGTON, Aug. 3.—While no definite countervailing duty on imports of pig iron from the Tata Iron & Steel Co. in India was determined upon here on Wednesday of last week at a conference between customs officials and representatives of Eastern merchant blast furnace interests, a formula was submitted by the latter and is being considered by the customs officials.

It is believed that the amount of duty will be arrived at soon through the formula proposed or one that may be adopted in its stead. Under the proposed formula it is understood that the countervailing duty would be approximately $1.44 a ton, which, added to the regular duty of 75c. per ton, would aggregate an import duty of $2.19 a ton on iron coming from the Tata works, and be made effective from the date of the decision on April 16 of the present year.

The plan outlined, it is stated, is based on the production of steel ingots and pig iron in India during the calendar year 1925. The output of the two products for the year is said to have been approximately 500,000 and 370,000 tons respectively. According to reports, these two items were added, making a total of 870,000 tons, and divided into 3,000,000 rupees, the amount of subsidy the Indian Government is said to have paid during the year on 70 per cent of the production of steel ingots. When the subsidy provided 12 rupees per ton on ingots, the rupee was worth approximately 25c. At present the rupee has the value of 36c. By reason of the fact that the rupee has appreciated, it is said that the proposed formula has been the source of objection on the part of importers interested in the iron affected. It is known that plans are being made by importing interests to appeal the decision to the customs court.

Thermit Patents Sustained

Decision was recently rendered by the United States District Court of New Jersey, Judge Bodine presiding, sustaining three patents of the Goldschmidt Thermit Co., a subsidiary of the Metal & Thermit Corporation, New York, covering essential features of aluminothermic welding. One of the patents sued on covers the aluminothermic mixture, or welding material, another covers the welding process involving preheating as a step, and the third covers the insert rail weld whether having a loose insert or one made by cutting back the web and base. This latter practice is commonly known as "undercutting."

Steel Furniture Orders Continue High

Orders received for steel furniture in June, as reported by the Department of Commerce from returns of 33 manufacturers, amounted to $2,556,631, compared with $2,464,457 in May and with somewhat larger figures in earlier months of this year. The total for six months, at $16,371,168, shows a 23 per cent gain over the first six months of 1925, when the total was $13,317,809.

Shipments have held close to orders received, having run a little ahead of orders during the past few months, resulting in a decline in the amount of unfilled orders. The latter item stands at $1,535,166 at the end of June, compared with $1,975,884 at the end of February, which was the maximum of the year so far.

Steel shelving ordered in June amounted to $606,698, compared with $580,995 in May. Here again the six-month total at $3,714,209 shows a considerable increase over last year, at $3,259,359. Unfilled orders at the end of June were $553,660.

Soon to Investigate Charge of German Bounty

WASHINGTON, Aug. 3.—Investigation by the joint commission, consisting of two representatives of the American government and two of the German government, as to whether or not iron and steel products rolled in Germany and imported into this country are subject to bounties will likely get under way early during the present month. This was made known by a formal statement issued on Thursday of last week by the Department of State, which announced that the American members of the committee selected are William Coffin, consul general in Berlin, and Charles L. Turrill, assistant customs attaché in London, and that the German members are Mr. Hemmen, the reporting counsellor of legation in the foreign office, and Mr. Vogt, in the German Ministry of Economics.

In making the announcement the State Department said in part:

> When the Treasury Department, under Section 303 of the tariff act, recently ruled that German steel and iron products must pay additional duties in the United States on the ground that export bounties were being paid in Germany, the German ambassador, under instructions from his government, stated that the treasury was in error in believing that export bounties were being paid. He asked that before this regulation was finally put into effect there should be a thorough investigation and discussion of the matter by a committee made up of two representatives of the German government and two of the American government. This committee will be a fact finding body, the Germans to explain thoroughly their system of financing exports in order that the American members of the committee might report the full situation to the treasury for decision as to whether or not export bounties are actually being paid.

Large Agricultural Machinery Exports

WASHINGTON, Aug. 2.—Amounting to $90,029,469, exports of agricultural implements from the United States during the fiscal year ended June, 1926, established a new record and showed a gain of $27,323,520, or more than 43 per cent over similar exports during the preceding fiscal year, according to the Agricultural Implement Division, Department of Commerce. Exports during the last fiscal year were more than 30 per cent greater than those of the 1924 fiscal year; more than double the foreign shipments during the fiscal year ended June, 1923; and more than four times as great as those in the year ended June, 1922.

Shipments of wheel tractors comprised more than one-third of the total shipments. They amounted in number to 58,546, valued at $33,492,674. This was nearly double the exports of 30,070, valued at $16,847,447, during the preceding year, and was several hundred per cent greater than the exports of tractors in any of the other years immediately preceding, with the exception of 1920.

Plows and harvesters and binders were the two other largest items of export for the year ended June 30. Shipments of plows totaled $7,726,818, as compared with $5,846,716 in the previous year. Exports of harvesters and binders amounted to $7,350,611 in the last fiscal year, as against $5,511,970 in the preceding year.

Output of Plumbago Crucibles in 1925

A recent bulletin of the Bureau of Census indicates a decline of 33 per cent in manufacture of crucibles for 1925 as compared with 1923. This, however, includes glass house pots and other refractories produced at crucible plants. Deducting these items, the Plumbago Crucible Association, 90 West Street, New York, C. H. Rohrbach, secretary, finds that the census figures show output of plumbago crucibles in 1925 amounting to $1,802,252 as compared with $2,312,739 for 1923, or a decline of 22 per cent in value of output of crucibles alone.

The A. R. Williams Machinery Co. of Vancouver, Ltd., Vancouver, B. C., is now representing the Cleveland Planer Co., Cleveland, in the sale of its open-side planers in British Columbia and the Yukon.

OPPOSES AUXILIARY PLANTS*

Manufacturing by Railroads and Other Industries for Own Needs Declared Wasteful

As a general proposition, the practice of investing large sums of money in separate plants and organizing separate forces of men to manufacture certain commodities for what might be called "self-consumption" is only another form of multiplying useless units and unnecessarily enlarging the volume of fixed investment and increasing fixed charges in manufacture.

If all the large railroad and industrial establishments in this country today were to establish different plants for the manufacture of all the different commodities which they use in any considerable volume, the difference in the quality of material, in standard of strength, and in cost of production would be appalling, and the American people—for they, in the end, must foot the bill—would pay the penalty in billions of dollars annually.

If we could reduce the number of unnecessary manufacturing establishments to the actual needs of the country, we would promote the same general purpose that is being effected in large industries in reducing the number and style of articles in daily use. Precisely the same principle is involved.

Nation-Wide Benefits

To the extent that all industries are made to function on a better business basis, the entire community reaps the benefit. Realizing this, the Department of Commerce has assumed a leadership in this economic movement with the most gratifying results. It has taken government out of business and put it behind business, where it properly belongs, and thereby worked a wonder.

Of course, the essence of its effort has been to eliminate elaborate and cumbersome methods of doing business, dispensing with as many parts and as many types of products, as many price ranges and as many unnecessary plants, processes and methods as good sense will permit.

In the past four years it has conducted approximately 1000 group conferences to this end.

The odd size has been one of the great curses of American business, and, as a consequence, the odd size is disappearing with a bewildering rapidity from American commerce. Hundreds of millions of dollars annually are thus being saved to the American people.

The Department of Commerce has introduced a large number of simplification systems into various lines of American business. Paving bricks have been simplified from 66 to 4 varieties; asphalt grades from 102 to 10; woven wire fencing from 562 to 69; and forged tools from 665 to 351. The average elimination in seven items in this field of miscellaneous construction materials alone is 80 per cent. . . . In sheet steel, varieties have been reduced from 1819 to 261, resulting in a saving of $2,400,000 annually.

You will observe that in the reduction of the number of articles manufactured in these various fields, no one has done away with any of the fundamental necessities of American life. The only consequence has been that we are in position to manufacture more units at less cost.

The facts I have given and the lessons they teach illustrate the logic of the new movement in which you gentlemen are pioneers—further to eliminate waste by eliminating useless plants and costly auxiliaries in connection with many great industrial establishments of this country. Mass production and mass purchasing are most formidable factors in our modern economics.

The Age of the Specialist

Specialization is the moving spirit of the age. . . . No single small unit operated as a mere incident to a railroad or industrial establishment can make the fullest improvement in quality nor aid materially in perfecting the art or in decreasing the cost of manufacture.

The remarkable industrial development in America as contrasted with Europe is due largely to the fact that the American people have been economically able to manufacture and purchase in larger volumes. Larger business units necessarily mean easier absorption of overhead expense, and allow leeway for expenditure of time and money in improving the product, cheapening cost of production, and lowering the price to the consumer.

It is needless to argue that those who are devoting their entire time to the development of new ideas and improved methods of manufacture of any single commodity, and at the same time effecting all the economies that naturally mark large volumes of production, can furnish commodities superior in character and lower in cost than the smaller manufacturing unit, and especially a mere auxiliary plant.

*Abstract of an address before the Bolt, Nut and Rivet Manufacturers' Association of the United States at Pittsburgh, July 1, by Hon. James F. Burke, its counsel.

Recent Labor Trouble at Byers Plant Not Serious

Recent labor trouble at the Girard, Ohio, plant of the A. M. Byers Co., Pittsburgh, was not so serious nor so extensive as indicated in the daily press. A number of puddlers employed at that plant were not satisfied with the wage scale settlement recently reached in Cleveland between representatives of the Western Bar Iron Association and the Amalgamated Association of Iron, Steel and Tin Workers and made an effort to organize a new union and sought to have the company recognize it. None of the men in the movement is a member of the Amalgamated association, members of which all have continued to work. Refusal of the company to recognize the new union merely meant a defection of only a part of the force and only a part, instead of a complete, suspension of the company's plant. The dissatisfied men have made efforts to get the men out at the Pittsburgh plant of the company, but without success. The Byers company is not a member of the Western Bar Iron Association, and operates on an open shop basis, but subscribes to the Amalgamated scale on wages and working conditions.

Wheeling Steel Reports High Earnings for Second Quarter

Net earnings of the Wheeling Steel Corporation for the quarter ended June 30 were approximately 61 per cent greater than for the same period in 1925, while for the first half of the year the increase over last year was almost 43½ per cent. For the second quarter the earnings were $1,208,048, compared with $747,094 in 1925, and for the first six months of the year they were $2,287,633, against $1,594,879 last year. The plants of the corporation are operating at between 85 and 90 per cent of their rated capacity.

It is reported that the work of construction in the coke ovens at East Steubenville, W. Va., is progressing satisfactorily and that No. 2 blast furnace at Steubenville has been blown out preparatory to beginning the work of rehabilitation and enlargement of that furnace. It is expected that the work will be completed and the furnace in operation before the end of next December. Excavation work for the new skelp mill at the Benwood Works is under way.

More Mechanical Stokers Sold

Mechanical stokers sold by 12 establishments are reported by the Department of Commerce to have numbered 175 in June, with a total of 68,408 hp. Except for the 70.055 hp. of April, this is the highest figure in 15 months, and, with the added exception of March, 1925, it is the highest in more than two years. It compares with 48,482 hp. in May and with 44,095 hp. in June, 1925.

In This Issue

Centralized tool-sharpening room saves money for Willys-Overland.—Each of the 17 tool cribs has a stock of sharp tools, so that no time is lost in waiting for dull tools to be sharpened. At regular intervals dull tools are trucked to central tool-sharpening department. Number of tool-grinding machines is sharply reduced.—Page 352.

Mixer is operated for six years without relining.—Used in foundry for receiving hot metal direct from blast furnace. Started in 1920, it is still operating. Long life is credited to the fact that the furnace is always under the action of suction.—Page 350.

Saves $20,000 *yearly by discovering way to separate monel turnings from iron and steel scrap.*—General Electric Co. found ordinary magnetic method was not successful. But a rheostat reduced the current on the magnetic separator so that the ferrous scrap could be lifted while the monel metal dropped.—Page 347.

World's largest blooming mill for the Carnegie Steel Co.—Has a double motor-operated manipulator which will handle 15-ton ingots.—Page 349.

Harmonious relations existing between American employers and employees commended by German engineer.—Tells German engineering society that Americans are excellent managers of men and that absence of class hatred is a major factor in America's industrial supremacy.—Page 346.

New type of burner for drying newly-lined ladles saves one steel company $17,000 *yearly.*—Consumption of gas is sharply reduced by burner which gives complete combustion.—Page 338.

Attractive dwellings built from old checker-chamber brick.—Waste brick from steel furnaces is found to adapt itself readily for use in building construction.—Page 339.

Arc welding in building construction is demonstrated by laboratory tests.—Five-story building will have welded frame. Welding is not expected to show savings over riveting in assembling, but in eliminating angles and braces.—Page 344.

Do wet molds cause hard castings?—Sand with over 15 per cent moisture content will produce hardness, metallurgist observes.—Page 346.

City gas at low pressure is used to heat zinc bath for burial vaults.—Two-fold method of liberating heat saves fuel.—Page 342.

Large savings made by repairing open-hearth furnaces in time.—By not deferring repairs until the last possible ton of metal has been "squeezed" out of the furnace, Armco avoids delays caused by extensive repairs.—Page 338.

Thin, soft gray iron castings made from pig iron with 4 per cent carbon.—High carbon allows more graphitic carbon to be formed, insuring softness, though strength is reduced.—Page 345.

America's purchases of foreign machinery have increased considerably.—48 per cent gain over previous fiscal year, while American machinery builders' export sales increase 22 per cent.—Page 397.

Industrial thrift campaign saves thousands of dollars for steel company.—Teaching thrift to workers resulted in economies amounting to $50,000 at end of a year.—Page 337.

New case-hardening process utilizing nitrogen is said to have many advantages.—Deformation is eliminated. The treatment is suitable only to special steels, and is accomplished at low temperatures, though a case of exceptional hardness is obtained.—Page 340.

July daily pig iron output falls 3.6 per cent.—Daily average was 103,978 tons, 3866 tons below June; 216 furnaces now in blast, 4 below July 1 total.—Page 370.

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Progress in Saving Wastes

ECONOMY has truly become a world-wide watch word. Many profess to see little effort to reduce extravagance in the United States, but there is evidence of savings in the better earnings being shown by our industrial companies in the face of many still high manufacturing costs along with lower selling prices than have obtained in recently comparable periods.

That Americans have a long way to go to imitate Europeans in little economies is all too true, but we are undoubtedly trailing them on the same road. While individually relatively little progress appears to have been made, collectively we have only to point to the achievements of the simplification movement of the Department of Commerce. In the middle ground we have other opportunities to save, such as utilizing waste products. The articles on pages 337, 347 and 351 of this issue offer three good cases.

For News Summary See Reverse Side

Where Steel Exports Went in Fiscal Year

Canada Took 442,378 Tons of Nine Leading Items—Japan Retains Second Position with 152,249 Tons of Nine Items, Followed by Cuba with 61,115 Tons

Exports from United States, by Countries of Destination

(In Gross Tons)

	Steel Plates				Galvanized Sheets				Black Steel Sheets			
	June		Twelve Months Ended June		June		Twelve Months Ended June		June		Twelve Months Ended June	
	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925
Total	*14,070*	*8,378*	*118,874*	*86,174*	*12,410*	*9,600*	*159,894*	*144,784*	*11,563*	*5,346*	*149,098*	*102,612*
Canada	12,014	5,091	101,722	64,983	2,631	1,195	28,904	19,718	5,835	3,710	53,546	36,013
Japan*	.....	78	468	1,272	246	273	5,731	9,171	4,913	625	77,247	56,215
Cuba	33	104	1,602	962	422	1,163	11,845	11,648	125	111	816	846
Philippine Islands	1	1	1,174	957	1,368	722	19,342	14,682	.....	26	1,014	542
Mexico	124	52	1,675	976	952	659	10,070	7,413	.....	.....	426	.....
Argentina	.....	.....	.....	.....	1,324	445	8,517	42,862	.....	.....	999	330
Chile	90	2,380	.....	.....	292	361	2,021	2,001	40	234	.....	.....
Colombia	.....	.....	.....	.....	358	345	7,740	5,673	.....	.....	.....	.....
Central America	.....	.....	.....	.....	.....	.....	345	4,357	.....	.....	.....	.....

	Steel Rails				Barbed Wire				Plain and Galvanized Wire			
	June		Twelve Months Ended June		June		Twelve Months Ended June		June		Twelve Months Ended June	
	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925
Total	*14,495*	*15,660*	*147,284*	*186,193*	*4,597*	*5,216*	*64,751*	*85,349*	*2,320*	*3,068*	*35,903*	*31,510*
Canada	1,090	2,298	24,782	15,695	1,104	44	4,377	4,921	902	1,331	12,973	11,069
Japan*	1,203	334	18,047	6,260	.....	.....	.....	.....	69	40	1,141	732
Cuba	737	4,954	23,321	56,752	233	492	2,842	5,513	73	213	1,587	3,120
Philippine Islands	.....	852	4,786	4,672	453	172	4,832	.....	.....	.....	.....	.....
Mexico	150	395	4,468	5,818	551	536	5,856	5,897	444	220	5,436	3,725
Argentina	.....	.....	.....	.....	10	629	5,711	9,033	193	.....	3,512	480
Chile	5,011	.....	10,303	5,928	.....	.....	.....	.....	.....	.....	84	514
Colombia	201	25	5,576	5,090	438	275	6,577	6,619	.....	.....	.....	87
Brazil	50	220	4,925	6,847	296	1,516	9,883	25,681	95	3	157	2,398
Honduras	.....	.....	.....	1,817	.....	.....	.....	.....	.....	.....	.....	.....
Australia	.....	.....	.....	.....	114	57	1,442	2,186	.....	.....	324	5,682
British S. Africa	.....	.....	.....	.....	.....	.....	3,782	5,255	.....	.....	.....	.....

	Tin Plate				Steel Bars				Plain Heavy Structural Material			
	June		Twelve Months Ended June		June		Twelve Months Ended June		June		Twelve Months Ended June	
	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925
Total	*12,432*	*11,284*	*181,948*	*140,439*	*8,630*	*7,182*	*124,240*	*76,752*	*15,945*	*7,503*	*136,221*	*98,701*
Canada	3,685	2,884	35,272	27,141	5,877	4,226	75,724	46,520	13,386	5,624	105,078	72,475
Japan*	814	2,812	45,691	50,594	53	58	1,592	2,005	294	25	2,332	3,931
Cuba	199	955	3,246	5,743	335	280	5,350	9,170	678	837	9,506	12,271
Mexico	517	317	5,798	4,830	334	88	2,352	.....	.....	.....	.....	.....
Argentina	450	316	6,485	8,109	20	94	.....	.....	.....	.....	.....	.....
Chile	302	261	6,385	4,081	190	370	.....	.....	16	343	2,598	3,758
United Kingdom	.....	.....	.....	.....	.....	.....	†14,388	†14,892	.....	.....	.....	.....
China	911	1,409	20,944	7,539	.....	.....	.....	.....	.....	.....	.....	.....
British India	1,458	.....	11,312	5,390	.....	.....	.....	.....	.....	.....	.....	.....
Hong Kong	44	23	.....	1,305	.....	.....	.....	.....	.....	.....	.....	.....
Italy	1,125	493	7,933	5,109	.....	.....	.....	.....	.....	.....	.....	.....

*Including Chosen (Corea). †Eleven months, ended May 31.

Destination of Iron and Steel Products Exported From the United States

(In Gross Tons)

	June,	Jan. Through June,	
	1926	1926	1925
North and Central America and the West Indies	*94,458*	*541,289*	*452,548*
Canada and Newfoundland	74,668	404,229	284,360
Cuba	5,606	44,238	73,567
Mexico	8,212	49,227	57,962
Guatemala	663	7,334	4,119
Salvador	906	10,631	8,715
Panama	787	4,353	5,912
British West Indies	591	4,504	3,732
Other West Indies	129	5,206	2,420
Other Central America	2,896	11,565	11,761
South America	*24,658*	*168,945*	*166,174*
Argentina	3,970	30,368	60,498
Venezuela	3,256	31,088	15,307
Colombia	5,731	32,446	28,236
Chile	7,771	32,375	26,242
Peru	1,285	18,150	7,483
Brazil	1,933	18,459	23,433
Other South America	712	6,059	4,975
Europe	*8,725*	*68,048*	*49,009*
United Kingdom	3,459	24,642	22,997
Italy	2,955	21,763	26,177
France	220	6,911	2,452
Russia	1	2,807	99
Rumania	181	1,904	273
Turkey	20	692	978
Other Europe	1,889	9,329	15,994
Far East	*29,651*	*242,187*	*135,935*
Japan and Chosen	13,099	130,340	57,032
Philippine Islands	3,259	30,457	24,297
India	3,309	18,549	8,646
China	1,512	17,263	17,556
Dutch East Indies	1,545	16,510	8,546
Australia	3,286	12,418	11,461
Kwangtung	3,499	7,197	1,008
British Malaya	95	4,513	3,725
Other Asia and Far East	1,047	4,580	4,864
Africa	*2,014*	*8,274*	*16,638*
British South Africa	1,066	4,155	16,706
Egypt	861	2,991	1,211
Portuguese East Africa	139	847	491
Other Africa	8	181	230
Total	159,506	1,031,583	842,295

The schedule of the next installments of the ***Business Analysis and Forecast****, by Dr. Lewis H. Haney, Director New York University Bureau of Business Research, is as follows:* ***Aug. 12****—Activity in Steel Consuming Industries;* ***Aug. 19****—Position of Iron and Steel Producers;* ***Aug. 26****—General Business Outlook.*

GERMAN CAPACITY GAINS

Fifty Per Cent of War Loss Regained in Iron and Steel—More Open-Hearth Furnaces

That the iron and steel productive capacity of Germany has displayed remarkable recuperative powers is the statement in an article, "Growth of German Iron and Steel Capacity Since the War," in the London *Iron and Coal Trades Review* for July 16. The main features follow:

A study of the figures now available shows that, despite the adverse experiences which Germany has passed through as a result of the war, and the industrial disorganization resulting therefrom, her productive capacity in iron and steel has shown remarkable recuperative powers.

In the latest normal year before the war (1913) Germany produced 19,309,172 metric tons of pig iron and 18,935,089 tons of steel. After the war she was deprived of nearly 50 per cent of her productive capacity; Lorraine was ceded to France; the Saar was placed under the control of the League of Nations and united economically to France; Luxemburg withdrew from the Zollverein to join up with the Belgian customs system; and in 1921 part of Upper Silesia was ceded to Poland as the result of the plebiscite. Based on the 1913 statistics of production, the loss thereby suffered by Germany was 8,400,000 tons of pig iron and 6,750,000 tons of steel.

The deficit, it will be noticed, was greater in the case of pig iron than in steel, due principally to the influence of Luxemburg, which, in 1913, produced 2,547,000 tons of pig iron and only 1,182,000 tons of steel.

Taking the regions of Germany that remain in her possession, the production in these regions in 1913 was 10,907,000 tons of pig iron and 12,184,000 tons of steel. The production figures since 1922 have been as follows, in metric tons:

Year	Pig iron	Steel
1922	9,395,670	11,714,302
1923	4,936,340	6,305,250
1924	7,812,231	9,835,255
1925	10,177,000	12,193,454

Comparing last year's figures with those for 1913, for the same regions, they will be seen to be substantially the same. So that, in spite of the economic crisis which commenced during the summer of 1925, German iron and steel production, for the same regions, was the same in 1925 as it was in 1913. Commenting on the figures the Essen correspondent of *La Journee Industrielle* points out that the rate of progress was not the same, because at periods during the four years considered, the means of production were considerably increased.

Taking one of the latest published statistics, viz., for March, 1926—showing a production of 716,654 tons of pig iron and 949,797 tons of steel—and comparing the monthly averages, it will be found that the output works out at 79 per cent of the 1913 production in the case of pig iron and 94 per cent in the case of steel, and this despite the fact that the crisis had not been overcome in March. It reached its culminating point in December, 1925, to January, 1926, the months in which the lowest productions were recorded. The drop in production, even at the height of the crisis, was not more than 25 per cent of the pre-war output.

From August, 1925, the Steel-Ingot Syndicate, which controls the German steel output, decided that the various works should not produce more than 65 per cent of what they were able to manufacture. As this limit has not been exceeded, it is obvious that the productive capacity of German iron and steel works has appreciably increased since the war.

Manufacturers in the Ruhr basin took advantage of the inflation of currency to modernize and develop their equipment. It is estimated that in Westphalia the present productive capacity of the blast furnaces is 30 per cent higher than it was in 1913, and of the steel works 25 per cent higher. As regards the latter, the increase is specially marked in the case of open-hearth furnaces, the number of which has risen from 245 in 1914 to nearly 300 in 1925. The present capacity of Germany may be estimated at 14,000,000 tons of pig iron and 15,500,000 tons of steel.

These figures show that Germany has already recovered 50 per cent of the deficit she suffered owing to the war. She remains the predominant European iron and steel country, and the second in the world after the United States.

Suspends Revised Rates on Implements

WASHINGTON, Aug. 3.—Tariff schedules, proposing a general revision of rates on agricultural implements in carloads between points in the Southeast and points in the Mississippi Valley territory which would result in both increases and reductions, have been suspended by the Interstate Commerce Commission from Aug. 1 until Nov. 29.

The following rates, stated in cents per 100 lb., are illustrative:

To	From Atlanta, Ga. Present	From Atlanta, Ga. Proposed	Chattanooga, Tenn. Present	Chattanooga, Tenn. Proposed
Memphis, Tenn.	35½	50	29½	45
New Orleans	35½	53	35½	53
Meridian, Miss.	47½	46	47½	45

Suspends Increase in Minimum Carload for Wrought Pipe and Seamless Tubing

WASHINGTON, Aug. 3.—The Interstate Commerce Commission yesterday announced that it had suspended from Aug. 1 until Nov. 29, tariff schedules which propose to increase the carload minimum on wrought iron pipe and seamless iron or steel tubing in Official Classification territory from 36,000 lb. to 46,000 lb. The schedules have been the object of strong protest from smaller manufacturers and jobbers of pipe.

Steel Traffic Treads Used on Bridge in California

STEEL traffic plates have been installed by the California Highway Commission on the Jordan Creek bridge on the Redwood Highway for the purpose of prolonging the life of the bridge. Four lines of traffic treads, 20 in. wide and ⅜ in. thick, were placed on the bridge, which is 140 ft. long.

Japanese Steel Industry Growing

Government Aid Expected to Be Beneficial—Pig Iron Syndicate Formed —Loan to Manchurian Works Discussed

TOKIO, JAPAN, July 16.—Statistics just made public following an investigation by the Mitsubishi Trading Co. show that pig iron stocks in Japan at the end of May were smaller than in several months. This condition was the result in part of the depression of Japanese business during the early months of the year and in part to the fact that Manchurian supplies have been uncertain as a result of the troubled state of that country. The tonnage of pig iron stocks has been reported as follows:

	Producers	Dealers	Consumers	Total
October, 1925	.....*	.....*	.....*	197,400
November, 1925	84,112	25,519	84,363	193,994
December, 1925	70,590	31,359	84,348	186,297
April, 1926	.....*	.....*	.....*	172,546
May, 1926	70,979	27,288	70,665	168,932

*Separate stocks not reported.

Japan's steel and iron industry has been depressed ever since the post-war panic of 1920 and remedies applied by or with the assistance of the Government are only now beginning to be effective. The Government is working toward making the nation self-sufficient in all the major industries and is encouraging the use of domestic products. Japan still has a slightly unfavorable foreign trade balance which the Finance Ministry is seeking to remove. A nation-wide national products campaign is being waged and representatives are being sent abroad, particularly to China, Malaya, Africa and South America, in an effort to secure wider markets for Japanese products.

To aid in the development of the iron and steel industry, the Government has increased tariffs and adopted a subsidy plan, as previously reported in THE IRON AGE. This law exempts from the business tax for 15 years concerns able to make 35,000 tons of pig iron and 35,000 tons of steel a year in one place and crucible and electro-steel manufacturers with an annual output of 3500 tons of pig iron. The intention of the pig iron provision is to encourage the development of the domestic production, as most Japanese supplies have been coming from India and Manchuria. The law also provides that firms benefiting by the other provisions of the encouragement bill shall be exempted from payment of duties on raw materials and machinery for 15 years.

Subsidies are as follows:

1. Steel ingots, 15 per cent ad valorem.
2. Sheets: Not exceeding 3 mm. thick, 23.33 yen per metric ton; other gages, 18.33 yen per metric ton.
3. Rods, 18.30 yen per metric ton.
4. Pipes and tubes: Not exceeding 150 mm. in diameter, 18 per cent ad valorem; others, 15 per cent ad valorem.

Plants producing 35,000 tons of iron and 35,000 tons of steel a year in one place receive additional subsidies of 6 yen per ton. Those producing 35,000 tons or more of either receive subsidies of 5 yen per ton. Four steel plants come under the first provision, 11 under the second.

Tariff changes and this law are aiding the steel industry and it is beginning to prosper. Plans are being made for increasing capacity. The Wanishi Steel Foundry of the Japan Steel Mfg. Co. has resumed operation of its 120-ton plant, doubling its active capacity of last year. The Kamaishi Mine is now operating but one 200-ton furnace but is recommissioning another. The Asano Steel Co. is installing a 150-ton furnace in its Tsurumi plant, near Tokio. Work on one of two 50-ton open-hearth furnaces at this plant is to be started soon. The Kobe Steel Works is installing a 25-ton open-hearth furnace. The Kawasaki Dockyard Co. is rushing work on two 25-ton open-hearth furnaces. Two others are under way by the same company, part of the plan to increase its production of thin sheets from 50,000 to 150,000 tons a year. The annual sheet production in Japan was recently only about 70,000 tons a year. The Iron Mfg. Co. is building a new 300-ton open-hearth plant for the Government Steel Works at Edamitsu, Kyushu.

Form a Pig Iron Producers' Association

In spite of protests from the steel interests, the five leading pig iron producers have formed the Japan Pig Iron Producers' Association, which became operative July 1. The members include the Kamaishi Mining Works, the Wanishi Mine of the Japan Steel Works, the Kenjiho plant of the Mitsubishi Iron Mfg. Co., the Okura Mining Company's Penchihu Colliery and the South Manchuria Railway's Anzin Steel Works. Their total annual production is 410,000 tons. Distributers have been selected and the syndicate has announced its intention of selling 210,000 tons during the next six months. It has fixed a price slightly lower than the current market quotation at the end of June, ranging from 49 to 54 yen a ton. Tata No. 1 at that time was 52 yen and Cleveland No. 1, 67 yen per ton. There are reports that the steel interests, headed by the Asano Steel Co., are planning to form a rival syndicate for the importation of foreign pig iron.

Concern Over Iron Imports from India

One of the principal incentives to the formation of the pig iron joint sales syndicate was the increased American duty on Indian pig iron. India ships about 160,000 tons annually to Japan, but Japanese foundrymen believe that the Tata works, with an annual capacity of 540,000 tons and a large subsidy from the British Indian Government, will encroach upon the Japanese market.

Thirteen shipyards and steel plants have been indemnified to the extent of 20,000,000 yen for the losses occasioned to them by Japan's abandonment of a naval building program, following the Washington Naval Conference. The principal beneficiaries are the Japan Steel Mfg. Co., 9,800,000 yen; the Kawasaki Dockyard Co., 2,500,000 yen; the Mitsubishi Shipbuilding & Engineering Works, 2,500,000 yen, and the Okura Mining Co., 1,900,000 yen.

Planning for Rehabilitating Works in Manchuria

The Ministry of Commerce and Industry is working on a plan to bring about resumption of operations at the Hanyehping Colliery & Iron Works, in Manchuria. This concern, to which Japanese Government authorities have advanced 85,000,000 yen in the past few years, is under Chinese-Japanese management and has a contract to supply annually 300,000 tons of ore and 100,000 tons of pig iron to the Government Steel Works. Since April, 1925, it has supplied but 16,000 tons of pig iron and no ore. In former years it supplied about 250,000 tons of pig iron, running far in advance of its contract.

It is claimed that the managers took the 8,500,000 yen loan made through the Yokohama Specie Bank last year and used it to finance Manchuria's wars. The plants controlled by the company are in need of repairs. Equipment has been allowed to fall into disrepair, only two locomotives are still suitable for use and practically everything movable has been seized by the armies. Because of this condition, the Government steel works has been short of raw materials and it has been found imperative to advance more money in some way. A concrete plan for the new loan has not yet been announced.

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Smoothing Out Trade Cycles

TRADE history itself for the past few years seems to have supplied an agreeable rejoinder to the early criticism of cycle studies. One such criticism was that, if the study resulted in a definite prediction of a change in trade at a certain time, business men would discount the prospect and thus prevent fulfillment of the prediction.

Knowledge of coming changes was desirable, but still more so would be a reduction in these changes. It was recognized in all quarters except those bent on speculation that a smoothing out of the trade cycle would be altogether desirable. It is absolutely wasteful for marked changes to occur. Neither men nor plants can work at more than their capacity and when there are spells of idleness it means that more productive facilities have to be on hand than are needed on an average.

The early criticism is technically justified in this, that the study of cycles since the war has not produced a verified prediction of either a "boom" or a severe depression, neither of these having occurred, nor yet any long range prediction covering the continued activity we have had. Interest in this matter, however, has been shown by two entirely distinct classes of people: individual business men who wished to mold their conduct to fit what to the individual is the inevitable, and men like Secretary Hoover who wished to see the trade cycles smoothed out. To the one it is purely a matter of "beating the game" while to the other it is a matter of improving the game.

It is too early to assert, or even definitely to hope, that there has been an elimination of the cycle; but it is desirable to count up such progress as seems to have been made. Since the war and the inflation and reaction that followed, while business was finding itself, we have had reasonably steady trade to date. Enough time has passed to make that amount to something, and indeed it really amounts to a great deal.

As time passes the study of trade conditions and developments takes new trends. It is not, as may have seemed a few years ago, an application of rule of thumb methods—so many years of this, so many years of that, for all the future—but the accumulation of knowledge looking to the avoiding of things rather than merely to predicting them.

Men try to see into the future, and always some will see further than others. This means that everything cannot be smoothed out, but nevertheless many influences can be eliminated. The Federal Reserve system has put an end to one fruitful source of disturbance. Wider knowledge of economics is reducing other influences. Mistakes will always be made, at least so long as man is progressive, but in this matter it is the number of people who make the same mistake that counts. The course of affairs to date seems to show clearly that mistakes are less common and widespread. If vigilance increases with the passing of time and the accumulation of information this smoothing out of our old-time trade cycles will continue.

Strenuous Competition in Steel

FOR more than two years there has been sharp competition in the steel market. It would be difficult if not impossible to pick out from the records a period showing a similar condition. The last "buying movement" in steel, of the old-time variety, ended in March, 1923. The momentum of the business then accumulated carried the trade for about a year. Then came the tremendous slump in shipments, July, 1924, showing only 45 per cent as heavy steel production as the preceding March, and only 52 per cent of the average for the preceding calendar year.

At or about that time some two years ago there developed stronger competition. There have been variations in intensity, but no real intermission. Sellers have noted many new twists in the competition. There have been new methods. Fresh influences have been invoked to swing orders. At times sellers have remarked, perhaps in somewhat sanguine vein, that all conceivable resources but that of price cutting were being employed. While such statements may not have been strictly accurate, they brought out succinctly the great difference between the competition and that of the

old days, when it was the other way about, there being only one competitive method, that of cutting prices.

The period has now extended so long as to be worthy of general consideration. It is a new thing. It was well recognized in the old days how much dependence the steel makers placed upon well filled and apparently overfilled order books for their operation and for the sustenance of prices. It was, in fact, not considered possible for mills to maintain prices unless they were at least apparently, if not really, oversold.

Recently it was urged by a prominent member of the steel trade that better merchandising methods were needed. That was and is true, for it is the common opinion that selling methods are not so good as manufacturing methods; yet comparisons show that there is greatly increased courage and resourcefulness exhibited by sellers. The way to measure this is to consider the increased difficulties. An excess of demand over productive capacity does not occur as it used to do, which makes a tremendous difference, and there is not the simple and clear cut price level there used to be in several commodities before the "Pittsburgh plus" style was formally written out. The matter sums up that sellers have had a much harder task and that they have worked correspondingly harder.

It is about twenty years ago that it came to be said quite commonly in the steel trade that "steady prices make steady demand." Now we have the matter in a new form, but with the same substance. The "steady prices" of those days were simple, clearly marked, and almost universal prices. For nearly two years we have had prices which for such a period appear quite steady, but which have involved various slight changes, with more or less continuous question from week to week whether prices were slightly stiffening or slightly softening. To the typical buyer there is a greater element of steadiness now than there was in the old days, for then if anything happened to prices it was likely to be something big. The market would be all right until it broke. Nowadays it may fluctuate, but the fluctuations are expected to be slight. The buyer has little concern and can proceed in his business with confidence.

"Cordial Relations" an Asset

IN defense of their action in forming an "outlaw" union, the New York subway strikers told the public that the existing organization of workers was a company union and thus could not represent the interests of the men. In so saying, the strike leaders only repeated what has been the comment of militant union heads on every effort, through employee representation or otherwise, to establish plant operation on a basis of friendly understanding.

The New York subway strikers and other workers who assert an essential hostility between the employing company and its employees may well read the reports published in England by members of the London *Daily Mail* mission who spent five weeks in the United States last spring in searching for the secret of American industrial prosperity. Much of what these members of British labor unions have set down concerning their trip deals with mass production, standardization, apprenticeship, "American methods," welfare work, profit sharing, bonuses, stock ownership by workers and the other familiar items that figure in such industrial investigations.

But one thing stands out in all the reports. And the average American, long acquainted with the bitter warfare that has been waged between labor unions and employers' associations in Great Britain, reads with surprise that almost without exception these picked representatives of aggressive unionism stress the spirit of cooperation of which they found evidence on every hand in American industry.

A delegate who belongs to the Amalgamated Engineering Union writes: "In my opinion one of the most pleasing features in American industrial life is the close cooperation that exists between the workmen and the management." Another says: "In all the plants I visited I was struck with the cordial relationship which existed between employers and workmen."

A representative of the metal trades reports:

> In my opinion, British employers might with advantage copy the methods of their American competitors in regard to the treatment of employees. The cordial, even friendly, relations which have been established between the management and work people in the great industrial plants of the United States are a revelation to the visitor from overseas. With the development of such friendly relations has grown up a sense of security among the workers. Their cooperation with their employers in the application of up-to-date methods and in works organization has had beneficial results for themselves, their employers and their industry.

Not to prolong the citations, which without exception use "cordial relations" or an equivalent expression, in referring to the human side of the industries investigated, it should be noted that these British visitors, all members of trades unions, were officially received by the executive council of the American Federation of Labor, and that much of the information gathered was given or checked by organized labor.

It is a fair inference, therefore, that the men who get American workmen to strike by telling them they are wage slaves, and that their employers are oppressors, use such incitements for wartime consumption only and for the gaining of specific ends. The real opinion of representative trade union leaders in the United States concerning employer-employee relations is that which we find in the conclusions of the British delegates.

Standardization and Invention

STANDARDIZATION has been given much attention in the past few years. Trades and industries have been struggling with it; witness the long quest for a bolt thread that will fit a nut of corresponding size, no matter where made. Societies have been organized to exploit the idea. Under the new name "Simplification of Practice" a campaign has been carried on by the tireless Herbert Hoover, and he has it extended to paving bricks, traffic signals and what not.

Every now and then a voice would be raised in protest, or to caution the over-zealous advocates

that there is a limit beyond which standardization ceases to be a virtue and becomes a nuisance or even a real brake on progress.

Limits set by commercial considerations are often responsible for characteristic developments in engineering and industry. Thus, the facts that the standard railroad gage is 4 ft. 8½ in. and that bridges, tunnels and track clearances were fixed years ago are responsible for the present form of railroad locomotives. Great ingenuity has been expended in getting a boiler, coal and water supply, and steam engine all compacted into these limits, and yet efficient enough to develop the power and speed required by traffic. To take another instance from the railroads: The first air brake applied widely to American railroad cars dominated the entire development of that essential auxiliary. Every improvement to be acceptable must be such as to couple into equipment of earlier manufacture and operate it, and yet the old equipment must not interfere with the improved operation expected of the new designs.

Under these limitations it is not surprising that the air brake innovators have been working at some disadvantage. Doubtless there were inventions which could have developed into commercial successes had there been nothing but manual brakes on the cars. But American railroads already were equipped with a particular system and into that system each improvement must fit without dislocation.

This necessity of conforming to the accepted type is irksome to innovators, but on the whole is doubtless a desirable conserving factor rather than a shackle. Cases in point are to be found in the iron and steel industry.

One wonders, for instance, what might be done with the annealing practices of the sheet mills. The sheets are packed in large boxes and then exposed to high temperature for a long time—a process wasteful in heat and time. In fact, the temperature required is higher than the theoretical—thus further increasing the apparent waste. "Why not," asks the innovator, "why not staple or spot-weld the sheets end to end by the projecting corners, run them through a continuous furnace (modifying the open or blue annealing method) and do the job in a fraction of the time and at a lower temperature? The sheets could be sheared apart for further rolling without adding materially to the scrap loss.

Theoretically, the idea looks good. Practically the reason why it has not become standard practice long since is probably that the sheet mill is essentially a discontinuous process. From bar to finished sheet the unit is a single small piece, and it goes forward step by step. Improvements in each step have been made, plenty of them. But the process is still essentially discontinuous, and until it is fundamentally changed the business men in the industry will naturally appraise every suggested innovation by the two criteria: "Is it an improvement to one of the steps?" "Does it fit with the rest of the operations?" A proposal that runs counter to the discontinuity of present practice is too great a change to be regarded as an improvement. It then becomes a revolution.

When the sheet mill becomes in effect a glorified strip mill—but that's another story.

Heart of the Farmer Problem

FROM the Department of Agriculture we have two important statements in respect to the position of the farmers in 1925. The department's statistical surveys show that net earnings of farmers were on the average more in 1925 than in 1924, while the latter year was in turn better for them than 1923. Nevertheless, their rate of income in 1925 was less than ought to be realized on the labor applied and the capital used. Farming is, therefore, still an unsatisfactory business, both from the standpoints of labor and capital, the farmer being at the same time a laborer and a capitalist. However, his situation is in no wise so bad as is portrayed by the politicians who profess to speak for him.

The second showing of the Department of Agriculture is that the migration from farms to towns that has been in process for a number of years continued in 1925, with the result of a further diminution in the farming population.

These findings are illuminatingly explained by reference to a recent research of one of the State agencies, which showed that in the same district there was wide variation in farming results. The average for the district was low and discouraging. Nevertheless, its best farmers did very well. This was not owing to any natural advantage of soil or area, but purely to the better management which increased the yield and cut down the expense per acre.

This, indeed, exposes the heart of the whole problem. The American farm unit is, roughly, a capitalization of about $17,000, present value. A business on that basis does not command any high degree of talent, whether it be a farm, a factory or a retail store. The man of superior ability, who has outgrown such a capitalization, finds it better to hire himself to a larger unit. An experienced engineer once remarked: "My farm manager loses money. When I become my own manager I make the farm pay, just as I would a mine, a factory or a milk route. This is, however, as a pastime. As a business it would have to be a million-dollar capitalization instead of $20,000 to make it worth my while."

This reveals the economic kernel of the agrarian problem, viz., that while other industries have been segregated into large units, the farms have lagged behind in small ones. If the individualism of the farmer prefers to have things in that way, and no doubt this is true, that is another matter, of social meaning. The farmer ought not, then, to complain of his lot, any more than does the trapper, prospector, herdsman or other primitive vocationalist.

But to come down to every-day thought, the least intelligent, least successful, farmer is being eliminated and forced to the towns where he can be employed by better managers than himself. Eventually his competition will have its natural effect in reducing the remuneration of town labor, while the curtailment in the number of farmers will tend to raise the proceeds for agricultural products. Thus will the natural laws of economics work out their own correctives.

For the moment the farming problem is in a disagreeable situation. The unsuccessful farmer and the politicians who get their jobs by speaking

for him assume an attitude of mendicancy and demand in effect that a bonus, disguised or undisguised, be handed to him at the expense of more successful people. That cannot be done, for we have not yet gone so far in socialism.

The demand and the situation are politically troublesome, especially in that an aggrieved group of people may perpetrate mischief. But the statesmen know well that there is nothing that they can do for the farmer, or that anybody can do, by public contribution or otherwise, and that the natural laws of economics must be left to work out their own solution, with the certainty that in the end they will do so.

REINFORCING STEEL

Awards of 5400 Tons Include 2000 Tons for Building at Cedar Rapids, Iowa

Including a 2000-ton award for a building for the Quaker Oats Co. at Cedar Rapids, Iowa, the week's awards of reinforcing bars amounted to nearly 5400 tons. Jobs on which inquiries are being made totaled more than 4800 tons, the largest being for bridges to Staten Island at Elizabethport, N. J. Awards follow:

NEW YORK, 125 tons, Bronx viaduct, by Charles Mead & Co., general contractor, to Concrete Steel Co.

LOCUST VALLEY, N. Y., 100 tons, high school, to Concrete Steel Co.

STATE OF NEW JERSEY, 200 tons, road work, to Concrete Steel Co.

EVANSTON, ILL., 250 tons, 14 sorority houses for Northwestern University to Concrete Steel Co.

CHICAGO, 279 tons of rail steel, Huron Building Corporation, to Calumet Steel Co.

CHICAGO, 600 tons, Park Lane apartment house, to Concrete Steel Co.

CHICAGO, 400 tons, Midwest Athletic Club, to Concrete Engineering Co.

CHICAGO, 300 tons of rail steel, apartment building at Huron and Clark Streets, to Calumet Steel Co.

CHICAGO, 100 tons rail steel, theater, to Olney J. Dean & Co.

CEDAR RAPIDS, IOWA, 2000 tons rail steel, building for the Quaker Oats Co., to Republic Iron & Steel Co.

KOHLER, WIS., pottery plant for Kohler Co., 350 tons, to American System of Reinforcing.

SAN MATEO, CAL., 200 tons, hotel, to Badt-Falk & Co., San Francisco.

STOCKTON, CAL., 150 tons, Medico-Dental Building, to Badt-Falk & Co.

SAN FRANCISCO, 100 tons, apartment building, to W. S. Wetenhall Co.

CRESTA BLANCA, CAL., 100 tons, bridge over the Arroyo del Valle, Alameda County, to unnamed jobber.

DELMAR, CAL., 100 tons, bridge over railroad crossing at Delmar, San Diego County, to unnamed jobber.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

BOSTON, 125 tons, Uphams Corner Market addition.

BOSTON, 100 tons, warehouse, Goodyear Tire & Rubber Co.; J. J. Prindiville Co., Framingham, Mass., general contractor.

CONCORD, N. H., 100 tons, S. S. Kresge Co. store.

WESTCHESTER COUNTY, N. Y., 100 tons, for highway construction.

ELIZABETHPORT, N. J., 2400 tons, Staten Island bridges, general contract to Snare & Triest Co.

GIRARD, OHIO, 800 tons, Liberty Avenue viaduct, Stange Construction Co., Cleveland, low bidder.

CINCINNATI, 100 tons, Red Bank crossing of Pennsylvania Railroad; general contract to Hodges Construction Co., Cincinnati.

HAMILTON, OHIO, 400 tons, Hamilton Community Hotel.

CHICAGO, 500 tons, 17-story apartment building at 70 East Cedar Street; McMally & Quinn, architects.

CHICAGO, tonnage being estimated, apartment building at 433 Briar Place; B. Leo Stieff, architect.

Wind pressures on structures are discussed in scientific paper No. 523 of the United States Bureau of Standards, prepared by Hugh L. Dryden and George C. Hill, on the basis of experiments made in the wind tunnel of the Bureau of Standards, Washington. Copies of the report may be obtained from the Superintendent of Documents, Government Printing Office, Washington, at 20c. each.

RAILROAD EQUIPMENT

Order for 500 Gondola Car Bodies and Inquiries for 200 Cars and 17 Locomotives

Inquiries appeared for 200 cars and for 17 locomotives. The chief contract closed in the week covered 500 gondola car bodies.

Locomotives in need of repair on July 15 totaled 9709 or 15.5 per cent of the number on line, according to reports filed today by the carriers with the car service division of the American Railway Association. This was an increase of 481 locomotives compared with the number in need of repair on July 1.

Among the week's developments are the following:

The Chesapeake & Ohio has placed 500 70-ton hopper-bottom gondola car bodies with the Richmond Car Works. This order also includes repairs for the trucks.

The Harwick Coal Co. is inquiring for 100 mine cars.

The Illinois Traction Co. is in the market for 100 50-ton gondola cars.

The Monon is in the market for 6 locomotives of the 2-8-2 type.

The Norfolk & Western is inquiring for 10 Mallet type locomotives.

The St. Paul Bridge & Terminal Railway will take bids on 1 8-wheel switching locomotive.

Gain in Railroad Equipment on Order

The railroads on July 1 had 37,253 freight cars on order, an increase of 9056 over the number on order on the same date last year but a decrease of 23,062 under the number on order July 1, 1924, according to reports filed with the Car Service Division of the American Railway Association. Locomotives on order July 1 totaled 646, compared with 279 on the same date last year and 360 on that date in 1924. On July 1, 1923, however, 1902 locomotives were on order.

During the first six months of 1926 the railroads placed in service 53,582 freight cars, a decrease of 29,709, compared with the number placed on the lines during the same period last year, and 17,292 less than the number placed in service in the first half of 1924.

Locomotives installed by Class 1 roads during the first six months of this year totaled 1117, an increase of 190 over the number put in service in the first half of 1925 and 46 more than the total for the corresponding period of 1924. It was a decrease of 881, however, compared with the first six months of 1923.

Pull and Sucker Rod Rates Held Reasonable

WASHINGTON, Aug. 3.—In a decision made public yesterday the Interstate Commerce Commission held that the rates on iron and steel pull and sucker rods from Marion, Ind., to destinations in Oklahoma and Texas are not unreasonable, and ordered dismissal of a complaint by the Marion Machine, Foundry & Supply Co.

Thirteen graduates of colleges and universities have been appointed research fellows to conduct studies in mining and metallurgy at the Carnegie Institute of Technology, Pittsburgh, during the coming year. The work, as in the past, will be carried on in cooperation with the Pittsburgh station of the U. S. Bureau of Mines.

July Pig Iron Output Falls Off

Daily Rate Less Than June by 3866 Tons, or 3.6 Per Cent—Smallest This Year—Net Loss of Four Furnaces

COMPLETE returns, many of them by wire, from every operating blast furnace, indicate another moderate decline in pig iron production last month. The July output, at 103,978 gross tons per day, was 3866 tons less than the June daily average of 107,844 tons. This is a falling off of 3.6 per cent. In June the decline from May was 4460 tons per day or 4 per cent.

The production of coke pig iron for the 31 days in July was 3,223,338 tons or 103,978 tons per day, as compared with 3,235,309 tons or 107,844 tons per day for the 30 days in June. The July production is the smallest this year, but exceeds any July since 1923, when the daily rate was 118,656 tons. The July rate this year is decidedly larger than in the corresponding months of 1924 and 1925.

There was a net loss of 4 furnaces during July, 12 having been shut down and 8 blown in. In June the net loss was 8 furnaces, with a loss of 9 in May.

Capacity Active Aug. 1

There were 216 furnaces active on Aug. 1 as compared with 220 on July 1. The estimated daily capacity of the 216 furnaces was 102,100 tons as contrasted with 106,140 tons per day for the 220 furnaces operating on July 1. Of the 8 furnaces blown in, 4 were independent steel company stacks, and 2 each were Steel Corporation and merchant furnaces. Of the 12 furnaces which ceased operations during July,

Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works	Merchant*	Total
July, 1925	65,715	20,221	85,936
August	68,530	18,711	87,241
September	70,300	20,573	90,873
October	76,464	21,064	97,528
November	77,262	23,505	100,767
December	81,552	23,301	104,853
January, 1926	83,867	23,107	106,974
February	81,148	23,260	104,408
March	85,841	25,191	111,032
April	89,236	25,768	115,004
May	86,682	25,622	112,304
June	82,186	25,658	107,844
July	79,392	24,586	103,978

*Includes pig iron made for the market by steel companies.

Pig Iron Production by Districts, Gross Tons

	July (31 days)	June (30 days)	May (31 days)	April (30 days)
New York	206,252	195,699	229,640	236,730
New Jersey	.....	.....	.....	.....
Lehigh Valley	84,223	91,034	92,696	94,770
Schuylkill Valley	66,531	68,190	81,563	80,290
Lower Susquehanna and Lebanon Valleys	35,945	35,094	36,845	36,755
Pittsburgh district	622,772	653,044	712,232	725,982
Shenango Valley	117,504	134,156	139,201	125,384
Western Penna.	127,622	123,924	145,095	158,790
Maryland, Virginia and Kentucky	82,963	85,901	94,691	98,783
Wheeling district	108,110	117,838	133,792	123,903
Mahoning Valley	317,307	313,633	341,801	348,174
Central and Northern Ohio	348,371	323,904	344,553	340,329
Southern Ohio	48,468	49,438	49,137	46,050
Illinois and Indiana	668,564	661,758	664,477	640,173
Mich., Minn., Mo., Wis., Colo. and Utah	137,135	137,753	153,072	147,902
Alabama	246,124	238,491	254,245	237,808
Tennessee	5,447	5,452	8,388	8,299
Total	3,223,338	3,235,309	3,481,428	3,450,122

Coke Furnaces in Blast

Furnaces	Total Stacks	Aug. 1 In Blast	Aug. 1 Capacity per Day	July 1 In Blast	July 1 Capacity per Day
New York:					
Buffalo	21	13	5,695	12	5,400
Other New York	5	2	770	3	1,055
New Jersey	3	0	....	0	....
Pennsylvania:					
Lehigh Valley	12	7	2,600	7	2,800
Spiegeleisen	2	1	120	1	110
Schuylkill Valley	12	5	2,145	5	2,140
Susquehanna Valley	6	2	875	2	875
Ferromanganese	1	0	....	0	....
Lebanon Valley	4	1	210	1	220
Ferromanganese	2	1	70	1	75
Pittsburgh District	52	37	19,970	36	20,900
Ferro. and Spiegel	4	3	375	3	400
Shenango Valley	14	7	3,470	8	4,070
Western Pennsylvania	19	8	3,570	9	3,865
Ferro. and Spiegel	2	2	290	2	270
Maryland	6	5	2,000	5	1,950
Wheeling District	12	7	3,280	8	3,925
Ohio:					
Mahoning Valley	26	19	10,070	19	10,450
Central and Northern	22	20	11,060	19	10,660
Southern	13	6	1,565	6	1,700
Illinois and Indiana	43	32	21,050	34	22,050
Mich., Wis. and Minn.	12	8	3,000	8	3,240
Colo., Mo. and Utah	7	3	1,340	3	1,320
The South:					
Virginia	16	1	250	1	245
Ferromanganese	1	1	75	1	60
Kentucky	5	1	345	1	360
Alabama	34	23	7,730	23	7,820
Ferromanganese	1	0	....	1	60
Tennessee	12	1	175	1	180
Total	369	216	102,100	220	106,140

Production of Steel Companies for Own Use—Gross Tons

	Total Iron Spiegel and Ferro		Spiegeleisen and Ferromanganese* 1925 Fe-Mn	1925 Spiegel	1926 Fe-Mn	1926 Spiegel
	1925	1926				
Jan.	2,692,537	2,599,876	23,578	5,418	29,129	7,746
Feb.	2,539,785	2,272,150	18,184	4,910	22,309	7,084
Mar.	2,812,995	2,661,092	20,062	5,449	24,064	7,339
Apr.	2,514,828	2,677,094	21,448	5,341	24,134	7,051
May	2,306,887	2,687,138	22,679	5,294	23,159	6,999
June	2,113,566	2,465,583	19,836	4,972	25,378	5,864
½ year	14,980,598	15,362,933	125,787	31,384	148,173	42,083
July	2,037,160	2,461,161	16,614	5,074	26,877	3,699
Aug.	2,124,439	.....	18,867	4,939	....	....
Sept.	2,109,205	.....	18,381	5,162	....	....
Oct.	2,370,382	.....	21,421	5,071	....	....
Nov.	2,317,888	.....	25,490	6,375	....	....
Dec.	2,528,120	.....	26,072	7,756	....	....
Year	28,467,792	.....	252,632	65,761	....	....

*Includes output of merchant furnaces.

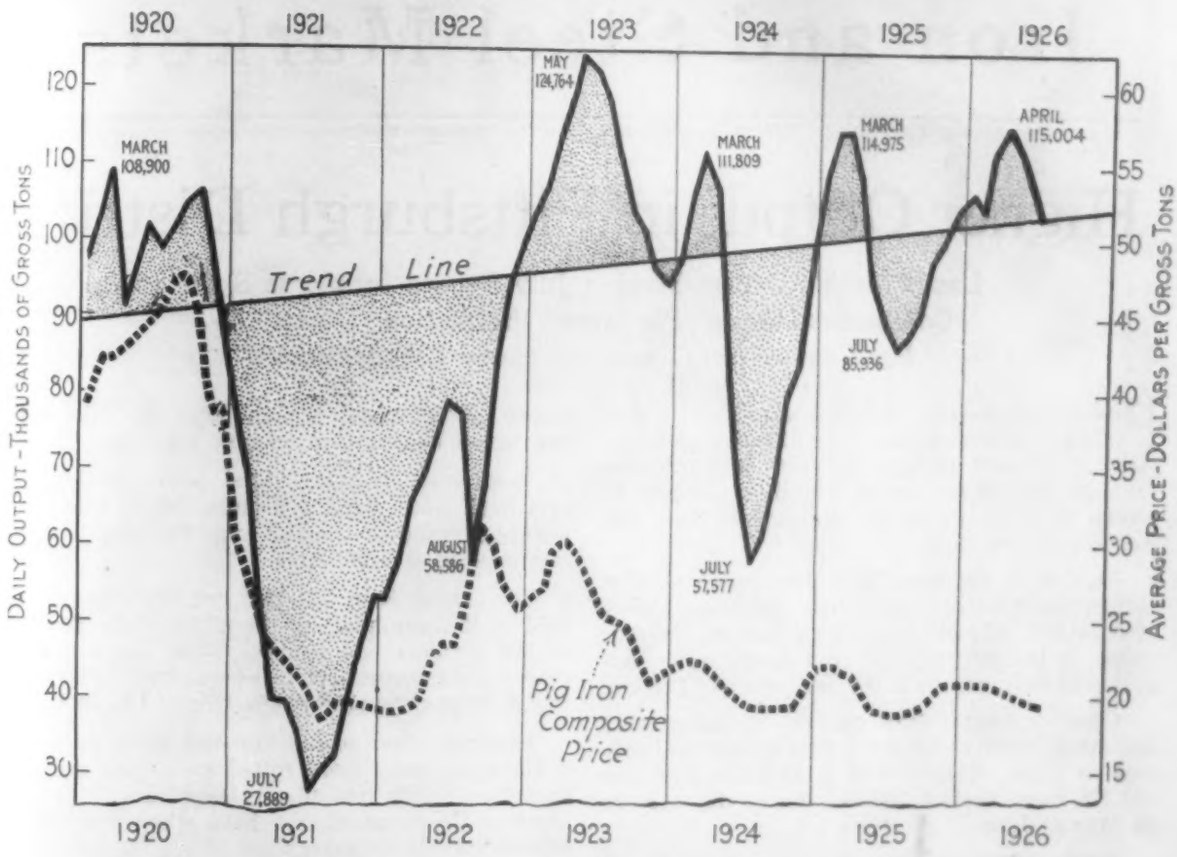
Production of Coke and Anthracite Pig Iron in United States By Months, Beginning Jan. 1, 1924—Gross Tons

	1924	1925	1926
Jan.	3,018,890	3,370,336	3,316,201
Feb.	3,074,757	3,214,143	2,923,415
Mar.	3,466,086	3,564,247	3,441,986
Apr.	3,233,428	3,258,958	3,450,122
May	2,615,110	2,930,807	3,481,428
June	2,026,221	2,673,457	3,235,309
½ year	17,434,492	19,011,948	19,848,461
July	1,784,899	2,664,024	3,223,338
Aug.	1,887,145	2,704,476	.....
Sept.	2,053,264	2,726,198	.....
Oct.	2,477,127	3,023,370	.....
Nov.	2,509,673	3,023,006	.....
Dec.	2,961,702	3,250,448	.....
Year*	31,108,302	36,403,470	.....

*These totals do not include charcoal pig iron. The 1925 production of this iron was 196,164 tons.

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1922—Gross Tons

	1922	1923	1924	1925	1926
Jan.	53,063	104,181	97,384	108,720	106,974
Feb.	58,214	106,935	106,026	114,791	104,408
Mar.	65,675	113,673	111,809	114,975	111,032
Apr.	69,070	118,324	107,781	108,632	115,004
May	74,409	124,764	84,358	94,542	112,304
June	78,701	122,548	67,541	89,115	107,844
½ year	66,578	115,147	95,794	105,039	109,660
July	77,592	118,656	57,577	85,936	103,978
Aug.	58,586	111,274	60,875	87,241	.....
Sept.	67,791	104,184	68,442	90,873	.....
Oct.	85,092	101,586	79,907	97,528	.....
Nov.	94,990	96,476	83,656	100,767	.....
Dec.	99,577	94,225	95,539	104,853	.....
Year	73,645	109,713	85,075	99,735	.....



Daily Pig Iron Output in July About 3.6 Per Cent Less Than in June; Composite Price Unchanged

Inclined line represents the gradually increasing theoretical needs of the country, and shows that production still is above the so-called normal. Dotted line represents THE IRON AGE *composite price*

6 were merchant, 4 were Steel Corporation and 2 were independent steel company units.

Manganese Alloy Output

The production of 26,877 tons of ferromanganese in July was the second largest this year, comparing with 25,378 tons in June and 29,129 tons in January, the year's peak. Only 3699 tons of spiegeleisen was made, the smallest for the year.

Furnaces Blown In and Out

Among the furnaces blown in during July were C furnace at the Lackawanna plant of the Bethlehem Steel Corporation in the Buffalo district; one Eliza furnace of the Jones & Laughlin Steel Corporation and the Clinton furnace in the Pittsburgh district; No. 1 Haselton furnace of the Republic Iron & Steel Co. in the Mahoning Valley; No. 1 furnace of the National Tube Co. and No. 1 furnace of the Otis Steel Co. in northern Ohio; the Thomas furnace in Wisconsin, and No. 4 Ensley furnace of the Tennessee Coal, Iron & Railroad Co. in Alabama.

Among the furnaces blown out or banked during July were the Standish furnace in New York; one Edgar Thomson furnace of the Carnegie Steel Co. in the Pittsburgh district; one Shenango furnace in the Shenango Valley; No. 2 Josephine furnace in western Pennsylvania; one Steubenville furnace of the Wheeling Steel Corporation in the Wheeling district; the Cherry Valley furnace in the Mahoning Valley; the Dover furnace in central Ohio; No. 2 South Chicago furnace of the Illinois Steel Co. and No. 3 Gary furnace in the Chicago district; one furnace of the Ford Motor Co. in Michigan; one Bessemer furnace of the Tennessee Coal, Iron & Railroad Co. and the furnace of the Gulf States Steel Co. in Alabama.

Sales of Automobiles Well Maintained

Sales of new cars and trucks are well above the same period a year ago in the majority of lines, according to *Automotive Industries*. Excellent agricultural and industrial conditions are proving the most potent source of the continued demand for new vehicles.

Budgeting technique will be discussed at the autumn convention of the American Management Association, which will be held at the Hotel Statler, Cleveland, Oct. 12. On Oct. 11, the sales executives' division of the association will hold a one-day conference at the Hotel Statler, Cleveland. The topic of the latter conference will be: "Trends in Methods of Distribution."

Using a gas-engine driven electric arc welding outfit with 1000 ft. of cable between the generator and the electrode, a successful welding demonstration was recently staged on the Pacific Coast. The Southern Pacific Railroad needed equipment that would weld 3/16-in. high carbon steel electrodes and furnish sufficient heat through cable 500 ft. from the set. A test was arranged by the Brown Brothers Welding Co., San Francisco, at the plant of the Pacific Coast Steel Co.

The Zanesville plant of the American Rolling Mill Co. reports a noteworthy record in safety work. In the entire plant, employing 800 men, there have been only three lost time accidents since Jan. 1. On the 13 hot mills, making light gage sheets, where the frequency of accidents is generally high, no accident has occurred during the year.

Iron and Steel Markets

Higher Output in Pittsburgh District

Last Month's Orders Make a July Record for Some Steel Companies—Daily Pig Iron Production Down 3.6 Per Cent—Steel Consumers Carry Larger Stocks

PIG iron production in July was so close to that of June as to bear out the estimates commonly made in the past 10 days that next week's figures for July steel ingot output will show little or no falling off from the 80 per cent rate of June, and may slightly exceed it.

In view of the remarkable July inflow of steel orders, which actual compilations since Aug. 1 make even larger in some cases than last week's estimates, it is now predicted that operations in August will fully maintain the July record.

Complete figures from pig iron producers make last month's output 3,223,338 tons against 3,235,309 tons in June. Thus the daily rate for July was 103,978 tons, against 107,844 tons a day for the 30 days of June.

Steel companies blew out six furnaces last month and blew in the same number; but in merchant furnaces there was a loss of 4. The 216 furnaces active on Aug. 1 (out of a total of 369) had a capacity of 102,100 tons a day, while the rated capacity of the 220 furnaces active on July 1 was 106,140 tons a day.

In view of the marked gain in new bookings in the last 10 days of July, operating rates are now generally above the average for last month. In the Pittsburgh, Youngstown, Wheeling and Johnstown areas the increase is most noticeable, and mills in those districts are now producing at a rate but little under 85 per cent.

While in general manufacturing consumers of steel have not increased their scale of operations, they have widened somewhat the unusually narrow margin of stocks carried earlier in the year. At that time predictions of business recession and lower markets dictated buying policy. Since mid-June the firmer stand of the mills on finished steel prices appears to have cut a large figure in demand, as industrial recession failed to develop.

It is in the light of this change that steel producers look upon their July bookings which for some of them made the month the best July in their history.

While the Pittsburgh and contiguous districts have stepped up in their production rate, Chicago has eased up a trifle, as rail mills slacken their pace. At Gary rail rollings last week were 8000 tons, against 18,500 a week early in the summer, and new rail buying is not expected before fall.

The suddenly expanded scale of steel output at Pittsburgh is explained in part by the fact that in February and March mills there accumulated stocks of such products as can be stored, and these in part supplied the demand in the second quarter. By mid-year the stocks had been drawn down to such a point that the July business compelled putting on new capacity.

Fabricated structural steel bookings, for the first week since April, fell below 20,000 tons. The weekly average so far this year for sizable projects is close to 30,000 tons.

The chief item in the railroad equipment field is the purchase by the Chesapeake & Ohio of 500 gondola car bodies. New inquiries appeared for 200 cars and 17 locomotives. The Norfolk & Western bought 10,000 tons of tie plates.

Finished steel prices for the most part are well maintained. Cold rolled strips are still an exception. While irregularity continues in sheets, some of the large makers have stood for higher prices, notably on galvanized.

The pig iron market, in contrast with finished steel, shows continued weakness, more pronounced in the Mahoning and Shenango Valleys, where production is likely to be curtailed further. No considerable buying for the fourth quarter is expected before fall.

Lake Superior iron ore shipments down the lakes in July were 9,999,137 gross tons, making a total for the season to Aug. 1 of 24,892,936 tons, against 26,924,435 tons to Aug. 1 last year. The falling off, due to the late opening of navigation this year, can easily be made up.

An inquiry for 29,750 boxes of tin plate has come from the Nippon Oil Co. and one for nearly 2000 tons of rails from Tokio.

Expansion in Germany is shown by 70 per cent capacity operations for August against 67½ per cent in July, also by increasing exports and higher export prices for wire and tubes. Our cables attribute the added strength of the Continental market to the imminent formation of an international steel cartel, which will exclude British makers.

Iron and steel exports from the United States during the first half of 1926 exceeded those for 1925 by 286,000 tons, or 34 per cent. The chief gains were in exports to Canada, 120,000 tons more; to Japan, 73,000 tons more; to Venezuela, Peru and British India, 10,000 to 16,000 tons more each. The principal losses were in exports to Cuba and Argentina, 29,000 and 30,000 tons, and to British South Africa, 12,500 tons.

Machinery exports in the fiscal year ended June 30 amounted to $398,300,000; for the preceding fiscal year they were $325,600,000.

Imports of machinery continue high, the fiscal year's total of $15,400,000 being 48 per cent above last year's $10,400,000.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 3, 1926	July 27, 1926	July 6, 1926	Aug. 4, 1925
No. 2X, Philadelphia‡	$22.26	$22.26	$22.26	$21.26
No. 2, Valley Furnace†	17.50	17.50	17.75	18.50
No. 2, Southern, Cin'ti†	24.19	24.19	24.19	22.55
No. 2, Birmingham†	21.00	21.00	21.00	18.00
No. 2 foundry, Chicago*	21.00	21.00	21.00	20.50
Basic, del'd, eastern Pa	21.00	21.00	21.00	20.50
Basic, Valley furnace	17.50	17.50	18.00	18.00
Valley Bessemer del. P'gh	*19.76*	20.26	20.76	20.76
Malleable, Chicago*	21.00	21.00	21.00	20.50
Malleable, Valley	*17.50*	17.75	17.75	18.50
Gray forge, Pittsburgh	18.76	18.76	19.01	19.76
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	88.00	88.00	88.00	115.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Light rails at mill	34.00	34.00	34.00	35.84
Bess. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. sheet bars, P'gh	36.00	36.00	36.00	35.00
Forging billets, base, P'gh	40.00	40.00	40.00	40.00
O.-h. billets, Phila	40.30	40.30	40.30	40.30
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	1.90
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.17
Iron bars, Chicago	2.00	2.00	2.00	1.90
Steel bars, Pittsburgh	2.00	2.00	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, New York	2.34	2.34	2.34	2.34
Tank plates, Pittsburgh	1.90	1.90	1.90	1.90
Tank plates, Chicago	2.10	2.10	2.10	2.10
Tank plates, New York	2.24	2.24	2.24	2.14
Beams, Pittsburgh	2.00	2.00	2.00	2.00
Beams, Chicago	2.10	2.10	2.10	2.10
Beams, New York	2.34	2.34	2.34	2.24
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.40

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Aug. 3, 1926	July 29, 1926	July 6, 1926	Aug. 4, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.10	3.10	3.10	3.15
Sheets, black, No. 28, Chicago dist. mill	3.25	3.25	3.25	3.30
Sheets, galv., No. 28, P'gh	4.20	4.20	4.25	4.20
Sheets, galv. No. 28, Chicago dist. mill	4.40	4.40	4.40	4.30
Sheets, blue, 9 & 10, P'gh	2.30	2.30	2.30	2.30
Sheets, blue, 9 & 10, Chicago dist. mill	2.40	2.40	2.40	2.40
Wire nails, Pittsburgh	2.65	2.65	2.65	2.65
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.70
Plain wire, Pittsburgh	2.50	2.50	2.50	2.50
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.55
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.35
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.40
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	$16.00	$16.00	$16.50	$17.50
Carwheels, Philadelphia	17.00	17.00	17.00	18.50
Heavy steel scrap, P'gh	17.00	17.00	16.25	18.50
Heavy steel scrap, Phila	15.75	15.75	15.00	16.00
Heavy steel scrap, Ch'go	14.00	14.00	14.00	16.25
No. 1 cast, Pittsburgh	16.50	16.00	15.50	17.50
No. 1 cast, Philadelphia	17.00	17.00	17.00	18.00
No. 1 cast, Ch'go (net ton)	17.00	17.00	17.00	17.50
No. 1 RR. wrot, Phila	16.50	16.50	16.50	17.50
No. 1 RR. wrot. Ch'go (net)	13.50	13.50	13.00	15.00
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$2.85	$2.85	$2.75	$2.90
Foundry coke, prompt	4.00	4.00	4.00	3.75
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.50	14.37½	14.00	14.62½
Electrolytic copper, refinery	14.25	14.12½	13.62½	14.37½
Zinc, St. Louis	7.40	7.47½	7.22½	7.50
Zinc, New York	7.75	7.82½	7.57½	7.85
Lead, St. Louis	8.90	8.70	8.00	8.90
Lead, New York	9.15	8.90	8.25	9.00
Tin (Straits), New York	65.00	63.50	62.62½	59.25
Antimony (Asiatic), N. Y.	16.00	16.00	14.00	17.75

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Pittsburgh

Decided Gain in Steel Output—Bessemer Iron Drops 50c.

PITTSBURGH, Aug. 3.—The steel market continues to cause surprise by the persistency of demand and the upward trend in production at a time of year that traditionally shows a tendency in the opposite direction. With the Johnstown district operating at 80 per cent of capacity, with ingot production in the Wheeling and Youngstown districts even higher than that, and the Pittsburgh district proper showing an 80 per cent rate, the average output for this great area is between 80 and 85 per cent, showing a decided gain over the June average.

The market recovery in steel works engagement, while mainly due to a material enlargement in the general demand for steel products and the development of real urgency in the call for tin plate and pipe since the middle of June, also finds explanation in the fact that during the second quarter of the year the existence of fairly large stocks of products which can be stored helped in supplying the demand, and the mills reached the mid-year with such small stocks that business since has entailed putting on additional capacity. Steel makers have not added to their obligations in plates, shapes and bars in the past month, because shipments have been largely against contracts rather than on new business, but in almost all other finished steel products new business seems to have been approximately equal to shipments. August starts with the prospect of as well sustained plant operations as July has shown. In view of the paucity of railroad buying and a slight drop in structural lettings the record of July is truly remarkable.

Activity in tin plate is likely to taper as the canning season draws to a close, and it is probable that winter demands for oil country pipe will not be of the present proportions, but against any loss of tonnage in those directions is the probability of offsetting increases in the demands of the railroads, the automotive industry and the agricultural implement manufacturers. In connection with pipe, it is fairly well established that the world is short of oil, and it is believed that if there is much falling off in demand over the latter part of the year, it will only mean business banked up for spring delivery.

Prices still are showing a good deal of steadiness in most directions, the most notable exception being cold-rolled strips. Some irregularity continues in sheets, but in the past few days some of the large makers have been attempting to put prices on a more profitable level, notably on galvanized sheets, which some mills now are declining at less than 4.30c., base Pittsburgh.

A price of $17.50, Valley furnace, for No. 2 foundry iron has been fully established by sales aggregating more than 2000 tons, and Bessemer iron has dropped to $18, Valley furnace, on sales of about 1500 tons. Not since the latter part of 1915 has Valley iron been any lower than it is today; indeed on the basis of materials, freight and labor costs, it is doubtful if the market is not actually lower now than then. Two merchant blast furnaces have blown out since a week ago, and at least two others are likely to go out in

the next few weeks, because present prices are below actual costs. Scrap dealers still are making an effort to put up prices, but consumers are resisting. The week has produced little change in the fuel situation.

Pig Iron.—The more important inquiries which were before the market a week ago have been closed, and on foundry iron melters have been able to buy at $17.50, Valley furnace, for No. 2 grade and on Bessemer iron at $18. Three consumers account for sales of 2100 tons of foundry iron. There were three separate sales of Bessemer grade, aggregating 1500 tons, all at $18. This represents a drop of 50c. a ton since a week ago on Bessemer iron and fully establishes that the market on foundry grade is actually at $17.50, although some producers have materially higher quotations on both grades. Two merchant producers are quoting $18.50 for foundry and basic grade, and one wants $19 for Bessemer. The supply of all grades of iron in this district, however, exceeds the demand. It is likely that the next few weeks will see some correction in the situation, as two merchant furnaces have been put out. No. 1 Shenango, Sharpsville, stopped making iron yesterday, and the one active McKinney Steel Co. stack at Josephine was blown out on Saturday, while in the next 30 days a Pittsburgh district and a Youngstown district furnace will reach the end of their ore and will probably quit. W. P. Snyder & Co. make the July average price of Bessemer iron from Valley furnaces $18.679 against $19 in June, and of basic iron $17.50 against $18 in June.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$17.50
Bessemer	$18.00 to 19.00
Gray forge	17.00 to 17.50
No. 2 foundry	17.50 to 18.00
No. 3 foundry	17.00 to 17.50
Malleable	17.50 to 18.00
Low phosphorus, copper free	27.50

Ferroalloys.—New business in the more commonly used ferroalloys still is limited, an altogether natural condition in view of the fact that large consumers are covered by contracts against their requirements for the remainder of the year. Occasional carload inquiries are reported for ferromanganese and 50 per cent ferrosilicon; sales of the latter are at the advance established in May, but buyers have not had to pay $95 for single carloads of ferromanganese, which usually have sold within $1 or $2 a ton of the contract price of $88. There are no offerings at present of 19 to 21 per cent spiegeleisen, as the leading commercial producer is fully obligated against probable production of that grade over the remainder of the year. Prices are given on page 377.

Semi-Finished Steel.—The livelier market in finished steel, as compared with June and May, finds reflection in the specifications against semi-finished steel contracts. Makers of tin plate who depend on outside sources for their steel are pressing for shipments of tin bars, and there is a freer movement of sheet bars and billets and slabs than there was a month ago. New business is slow in all forms, but the increased movement on contracts is helping producers to maintain prices. An active pipe market also shows in heavier specifications rather than in new demands for skelp. Open market activity in wire rods is small, but there is a good movement on contracts. Prices are given on page 377.

Steel and Iron Bars.—Mills in this area still are maintaining 2c., base Pittsburgh, on steel bars, and on small stock lots they are occasionally getting 2.10c. Generally, however, 2c. measures the top and bottom of the market, with no small part of current shipments carrying a price of 1.90c. Specifications against contracts are large, but new business suffers from the fact that so many of consumers were covered by contracts late in June. Iron bars are slow and barely steady.

Structural Steel.—Mills in this territory are not finding it hard to maintain 2c., base Pittsburgh, on large structural shapes, because there is a brisk demand for small tonnages for jobs calling for early completion. Since fabricators are able to get better prices for prompt than deferred deliveries, they are not balking at the mill price. Reports by fabricating companies here which are in a position to take business for delivery in the next 60 days indicate that about 1000 tons lately has been placed in small early delivery jobs. Most of the larger shops have enough work in sight to keep them busy through the remainder of the summer and cannot promise shipments much before the middle of October. They need business, however, for delivery after that date, because incoming business is not equal to shipments against old orders.

Plates.—The market here is firm at 1.90c., base Pittsburgh. Business is of fairly good volume, but is not taxing productive capacity, and the firmness of the market is due chiefly to the fact that many manufacturers prefer idle capacity to business at a loss. Barge demands are fairly large and a continued good market in line pipe is helpful to plate mill operations.

Wire Products.—There is a really good movement of plain or manufacturers' wire and a satisfactory business in nails, but fence, barbed wire and staples are doing no better than usual at this time of year. The general average of wire mill operations hovers between 50 and 60 per cent of capacity, but here and there some increase in output is observed in the building up of mill stocks, which were somewhat depleted by the steady demands over the past 60 days and the effort of mills to escape heavy inventories at midyear. Prices are steady. They are given on page 375.

Rails and Track Supplies.—Two local makers have advanced the price of large spikes to $2.90, base, per 100 lb., Pittsburgh, on business originating from other than the steam railroads. Making an exception for

THE IRON AGE Composite Prices

Finished Steel

Aug. 3, 1926, 2.431c. Per Lb.

One week ago	2.431c.
One month ago	2.431c.
One year ago	2.439c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

	High		Low	
1926	2.453c.,	Jan. 5;	2.403c.,	May 18
1925	2.560c.,	Jan. 6;	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15;	2.460c.,	Oct. 14
1923	2.824c.,	April 24;	2.446c.,	Jan. 2

Pig Iron

Aug. 3, 1926, $19.46 Per Gross Ton

One week ago	$19.46
One month ago	19.71
One year ago	18.96
10-year pre-war average	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

	High		Low	
1926	$21.54,	Jan. 5;	$19.46,	July 13
1925	22.50,	Jan. 13;	18.96,	July 7
1924	22.88,	Feb. 26;	19.21,	Nov. 3
1923	30.86,	March 20;	20.77,	Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.32c.
Del'd New York	2.34c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c. to 2.10c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Philadelphia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.22c.
Del'd New York	2.24c.
C.i.f. Pacific ports	2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.15c. to 2.25c.
Del'd Cleveland	2.19c.
Del'd Philadelphia	2.22c. to 2.32c.
Del'd New York	2.24c. to 2.34c.
C.i.f. Pacific ports	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.
Cotton ties, f.o.b. Atlantic ports, per bundle of 45 lb.	$1.22
Cotton ties, f.o.b. Gulf ports, per bundle of 45 lb.	1.20

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.60c.
Strips, f.o.b. Cleveland mills	3.40c. to 3.60c.
Strips, delivered Chicago	3.75c.
Strips, f.o.b. Worcester mills	3.75c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in.	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

Base to Retailers Per Net Ton

F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	63.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.25c. to 2.30c.
Nos. 9 and 10, f.o.b. Ch'go dist. mill	2.40c.
Nos. 9 and 10, del'd Philadelphia	2.62c. to 2.72c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.05c. to 3.15c.
No. 28, f.o.b. Ch'go dist. mill	3.25c.
No. 28, del'd Philadelphia	3.32c. to 3.42c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.20c. to 4.30c.
No. 28, f.o.b. Chicago dist. mill	4.40c.
No. 28, del'd Philadelphia	4.52c. to 4.62c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.10c. to 3.15c.
No. 28, f.o.b. Chicago dist. mill	3.25c.

Automobile Body Sheets

No. 28, f.o.b. Pittsburgh	4.20c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.75c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40
8-lb. coating I.C.	11.70
15-lb. coating I.C.	14.85
20-lb. coating I.C.	$16.20
25-lb. coating I.C.	17.90
30-lb. coating I.C.	19.45
40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(1½% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
2300	(3½% Nickel)	4.40 to 4.50
2500	(5% Nickel)	5.50 to 5.65
3100	(Nickel Chromium)	3.40 to 3.50
3200	(Nickel Chromium)	5.00 to 5.25
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.40 to 3.50
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.30
6100	(Chrom. Vanad. spring steel)	3.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
	Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
	Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.30
	Chromium Molybdenum bars (0.20—1.10 Chrom., 0.25—0.40 Molyb.)	4.25 to 4.35
	Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.40 to 3.50
	Chromium Molybdenum spring steel (1 — 1.25 Chrom., 0.30 — 0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	$34.00 to 35.00
Light (from rail steel), f.o.b. mill	32.00 to 33.00
Light (from billets), f.o.b. Ch'go mill	36.00 to 38.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅝ in. and larger	$2.90 to $3.00
Spikes, ½ in. and smaller	2.90 to 3.25
Spikes, boat and barge	3.25
Track bolts, all sizes	3.90 to 4.50
Tie plates, steel	2.25 to 2.35
Angle bars	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel: Inches	Black	Galv.	Iron: Inches	Black	Galv.
⅛	45	19½	⅛ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	12
1 to 3	62	50½			

Lap Weld

2	55	43½	2	22	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	⅛ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	7
½	53	42½	¾	28	12
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	37	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1¼ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1⅜ in.	52	3¼ to 3½ in.	47
1½ in.	56	4 in.	50
2 to 2¼ in.	51	4½, 5 and 6 in.	45
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	54	3¼ and 3½ in.	50
2½ and 2¾ in.	43	4 in.	53
3 in.	46	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base	55
Carbon, 0.30% to 0.40%, base	50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

the steam railroads simply means that other buyers, who usually buy in small quantities, are being called upon to pay a quantity differential. The Norfolk & Western Railway has closed for 1,600,000 tie plates, part of its fall track-laying program. The order is reported to have gone to the Wheeling Steel Corporation. Business in track accessories generally is quiet, and the makers of standard-section rails are getting no more business than usual at this time of year. Light rails are moving fairly well at recent prices. Prices are given on page 375.

Tubular Goods.—There is no abatement in the demand for lap-welded pipe, and there continues to be a persistent call for standard pipe. Mills have very materially reduced their stocks of the latter and, while able to make reasonably prompt shipments on orders, cannot in all cases and on all sizes start shipments, as they are frequently demanded on the day the order is placed. In the lap-welded sizes incoming business is somewhat in excess of capacity, and with mill stocks moderate, there is some backing up of orders. Shipment promises depend on the ability of mills to work the business into their schedules. All makers are obligated against full production for August, and on new business there is growing insistence that the shipping instruction accompany the order if it is to be scheduled. The mills still have much line pipe business going through. A recent order, placed with a Youngstown maker, calls for 84,000 ft. of 10-in. 41-lb. pipe, or 1700 tons, for the Roxana Petroleum Co. for line replacements in Oklahoma, while there is an inquiry from the Simms Petroleum Co. for approximately 1500 tons of 2-in. to 16-in. pipe. Boiler tubes are selling fairly well, but demands are not strong enough to sustain higher prices. Discounts are given on page 375.

Sheets.—Business still is gaining and, compared with that of other years at this season, is really good. But prices, while possibly a shade steadier, are no stronger, and until there is a demand more nearly equal to the productive capacity, it is doubtful whether manufacturers can successfully take a stronger price stand. It is questionable if many producers can show a profit in sheets at today's prices, but in the absence of a definite tendency toward higher prices, it is probable that losses would be even greater with mill suspensions. The American Sheet & Tin Plate Co. is holding to its recent prices and getting business equal to 80 per cent of capacity, despite prices by other makers $1 to $2 a ton lower. Blue annealed sheets are stronger in price than the other common finishes. Recent suggestions of a light and a heavy gage base on black sheets have been made many times before, but have not found much support. Prices are given on page 375.

Tin Plate.—The pressure for deliveries, particularly of packers' can sizes, is as great as ever and difficulty is experienced in meeting the demands because of the effect of hot weather on mill operations. The American Sheet & Tin Plate Co. last week operated most of its 10 active plants 17 turns in an effort to make up the production lost the week before. Shipments against new business are not promised before October, as present bookings will engage capacity over this month and next.

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforced steel bars	2.90c.
Black sheets (No. 28 gage), 25 or more bundles	4.00c.
Galvanized sheets (No. 28 gage), 25 or more bundles	5.00c.
Blue annealed sheets (No. 10 gage), 25 or more sheets	3.55c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb.	$3.00
Wire, galvanized soft, base per 100 lb.	3.00
Common wire nails, per keg	3.00
Cement coated nails	3.05

A good deal of early delivery business is being presented makers and refused, but no delivery premium prices have developed. In that connection it might be pointed out that it is not so much the size of the business as the urgency of delivery that is speeding up plant operations, and in many cases incoming orders are merely deferred specifications against business placed for first half delivery.

Cold-Finished Steel Bars and Shafting—Makers here not only are finding orders more numerous than they were a few weeks ago, but somewhat larger in size. There is no departure on the part of buyers, however, from short term buying, and makers still find it necessary to turn around quickly and at short notice to give the service required. Prices are steady at 2.50c., base Pittsburgh, on ordinary tonnages.

Hot-Rolled Flats.—Larger demands from the makers of automobile wheels are providing better engagement of 10-in. mill capacity, and demand for other sizes also is heavier. Prices are steady at recent levels.

Cold-Rolled Strips.—Demands are increasing, but there are many producers and competition for business still is keen enough to keep the market in the buyers' favor. Less-than-carload lots still command 3.75c., base Pittsburgh, and makers also have some contract tonnages on their books carrying that price, but on carload lots 3.60c., base, is the aim of producers and it is admitted that less would be done to retain a desirable account.

Bolts, Nuts and Rivets.—Demand for bolts and nuts still is more notable for its constancy than size. Prices are very steady. There is a fairly good demand for large rivets, but prices continue irregular, and on sizable orders running to a few sizes and carrying fairly large extras a concession of $3 a ton is rather frequent. Prices and discounts are given on page 377.

Coke and Coal.—The spot coke market is quotable at the same price as a week ago, but is not over strong. On furnace grade the influence of some tonnages released through blast furnace suspensions still is felt, and while there is a quotation of $3 per net ton at ovens, most sales are at $2.85 to $2.90. Spot foundry coke is finding a little better sale, but not enough better to bring about any higher prices. There is still some export business in coal, but reports of the possibility of an early settlement of the British coal strike seem to have dulled the edge of demand. Prices are given on page 377.

Old Material.—Heavy melting steel can be quoted up to $17.50 on the basis of dealers' bids, but the consumers' price still is $17 and they are getting enough at that figure to carry them along. Dealers figure that with the exceptionally high rate of steel works operations for this season there must sooner or later develop a demand, and accordingly they are paying high prices for material coming on the market, hoping to cash in later. So far no success has attended efforts to interest consumers at a price of more than $17. The market is slightly firmer on cast scrap of cupola size, not because of large demands, but because it is scarce.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel	$17.00 to	$17.50
No. 1 cast, cupola size	16.50 to	17.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	17.50 to	18.00
Compressed sheet steel	16.00 to	16.50
Bundled sheets, sides and ends	15.00 to	15.50
Railroad knuckles and couplers	18.50 to	19.00
Railroad coil and leaf springs	18.50 to	19.00
Low phosphorus blooms and billet ends	21.00 to	21.50
Low phosphorus mill plates	20.50 to	21.00
Low phosphorus, light grade	18.00 to	18.50
Low phosphorus punchings	18.50 to	19.00
Steel car axles	21.00 to	21.50
Cast iron wheels	16.50 to	17.00
Rolled steel wheels	18.50 to	19.00
Machine shop turnings	12.00 to	12.50
Short shoveling turnings	13.25 to	13.75
Sheet bar crops	19.00 to	20.00
Heavy steel axle turnings	15.50 to	16.00
Short mixed borings and turnings	12.00 to	12.50
Heavy breakable cast	15.50 to	16.00
Cast iron borings	12.00 to	12.50
No. 1 railroad wrought	17.00 to	17.50
No. 2 railroad wrought		17.00
Railroad or automobile malleable scrap	18.00 to	18.50

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F. o. b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base	$45.00
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Prices of Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	42c.
Manganese ore, Brazilian or Indian, nominal	42c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$11.75 to $12.50
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.00 to $23.00
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	55c. to 60c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$2.85 to $3.00
Foundry, f.o.b. Connellsville prompt	$4.00 to 4.50
Foundry, by-product, Ch'go ovens	9.75
Foundry, by-product, New England, del'd	12.00
Foundry, by-product, Newark or Jersey City, delivered	9.59 to 10.77
Foundry, Birmingham	5.50 to 6.00
Foundry, by-product, St. Louis or Granite City	10.00

Coal

	Per Net Ton	
Mine run steam coal, f.o.b. W. Pa. mines	$1.40 to	$1.75
Mine run coking coal, f.o.b. W. Pa. mines	1.50 to	1.75
Mine run gas coal, f.o.b. Pa. mines	1.85 to	2.00
Steam slack, f.o.b. W. Pa. mines	1.10 to	1.20
Gas slack, f.o.b. W. Pa. mines	1.20 to	1.30

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.	$88.00 to $95.00
Foreign, 80%, Atlantic or Gulf port, duty paid	88.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00 to $87.50
75%	145.00 to 150.00

	Per Gross Ton Furnace		*Per Gross Ton Furnace*
10%	$42.00	12%	$42.00
11%	42.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		*Per Gross Ton*
10% $33.00	12%	$37.00
11% 35.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		*Per Gross Ton*
6% $25.50	10%	$31.00
7% 26.50	11%	33.00
8% 27.50	12%	35.00
9% 29.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.05 to $1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$18.00
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.50 to $17.75
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works	
	High Duty	Moderate Duty
Pennsylvania	$40.00 to $43.00	$38.00 to $40.00
Maryland	43.00 to 46.00	38.00 to 40.00
New Jersey	55.00 to 75.00	
Ohio	40.00 to 43.00	38.00 to 40.00
Kentucky	40.00 to 43.00	38.00 to 40.00
Illinois	40.00 to 43.00	35.00 to 38.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton	6.50 to	7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00
Chicago	49.00
Birmingham	50.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.ob. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$45.00 to $48.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(Less-than-Carload Lots)

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.,	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, squares,	4.00c. per lb. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. per lb. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. per lb. off list
Washers*	6.50c. to 6.25c. per lb. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-punched nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅞ in. and smaller, U. S. S.	80, 10 and 5
1 in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	80, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	80, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	Per 100 Net U.S.S.		Per 100 Net S.A.E.	Per 100 Net U.S.S.
½-in.	$0.44	$0.44	⅝-in.	$2.35	$2.40
⅝-in.	0.515	0.515	⅞-in.	3.60	3.60
¾-in.	0.62	0.66	1-in.	5.65	5.90
⅞-in.	0.79	0.90	1⅛-in.	8.90	8.90
1-in.	1.01	1.05	1¼-in.	12.60	13.10
1⅛-in.	1.23	1.42	1⅜-in.	18.25	18.25
1¼-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.50 to $2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	2.65 to 2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70 and 10
F.o.b. Cleveland	70 and 10
F.o.b. Chicago	70, 10 and 5 to 70 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	80 and 10
Milled standard set screws, case hardened,	80 and 5
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U. S. S. thread,	80, 10 and 10
Upset hex. cap screws, S.A.E. thread,	80, 10 and 10
Upset set screws	80, 10 and 5
Milled studs	70 and 5

Chicago

Rail Production Declines—Lake Shipment of Pig Iron

CHICAGO, Aug. 3.—A slight curtailment of steel mill operations in this district is due wholly to the fact that rail contracts are now practically completed. The rate of rail rolling by the leading producer has been cut in half when compared to that of the previous week, and as a result the No. 3 furnace at Gary has been blown out and will be relined. The count of active furnaces for the Steel Corporation now stands at 10 at Gary, eight at South Works and one at Joliet, a total of 19 active out of 27 in this district. The Wisconsin Steel Works continues to blow two furnaces, the Youngstown Sheet & Tube Co., two, and the Inland Steel Co., four, bringing the total for all steel plants in this district to 27 active out of 36.

The demand for plates is easier, but business in structural shapes is holding up well and both specifications and shipments of bars have increased. Taking shapes, plates and bars as a group, specifications and buying are about equal to shipments, the rate of which has been virtually unchanged within the past three or four weeks. New buying of finished steel products as a whole continues in good volume, and is lagging behind shipments by only a small amount.

The month just closed is reported by producers to have been one of the best Julys ever experienced in the history of local steel production. New orders and specifications are widely distributed, coming from all classes of industry with the exception of railroad car manufacturers. There is now before the trade approximately 25,000 tons of plates, shapes and bars for cars on inquiry from Western railroads.

Plates.—The demand for plates is somewhat easier, since tankage programs are well advanced. The 2000 refrigerator cars inquired for last week by a Western railroad will require approximately 20,000 tons of plates, shapes and bars, and about 1200 tons will be needed for 100 50-ton gondola cars wanted by an Illinois traction system. New business for the week in oil storage tanks totaled 1200 tons. There is a slight improvement in the deliveries to be obtained on plates, and prices are steady at 2.10c., Chicago.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Pig Iron.—Several cargoes of pig iron will be loaded at an early date at a Lake Erie port for shipment to a Chicago broker. It is reported that this iron is being brought here to cover contract obligations, which were incurred largely during the recent buying movement. In the main, the local pig iron market is steady. Forward contracting still exists to a small degree, and spot buying is fairly active, considering the tonnages contracted for late in June and July. Prices are steady, with Northern No. 2 foundry iron quoted at $21, furnace, although an occasional carlot order will bring $21.50. An order for 1000 tons of foundry iron and two orders for 500 tons each have been closed for the Chicago district and west of here for shipment over the remainder of this year and into the first quarter of 1927. An inquiry from southern Illinois calls for 1000 tons of foundry iron for delivery throughout the third and fourth quarters. A Chicago district user has taken 700 tons of low phosphorus iron at $29.65, delivered. A western Michigan melter is in the market for 300 tons of foundry iron for the third quarter. Several lots of 300 to 400 tons each of charcoal iron have been sold this week at $29.04, delivered. Southern iron is quiet and is being quoted at $21, base Birmingham. The rate of pig iron deliveries is unchanged, and in some instances melters are pressing for shipments. The Mayville B stack was blown out July 31. Active merchant stacks in this district include one Mayville, two Federal, two Iroquois furnaces, the Zenith stack and the Thomas furnace. Stocks at furnaces are slightly below normal for this time of the year, except at the Mayville plant, where a supply of high phosphorus iron was laid on the ground in anticipation of relining the B furnace.

Quotations on Northern foundry high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	$21.00
Northern No. 1 foundry, sil. 2.25 to 2.75	21.50
Malleable, not over 2.25 sil.	21.00
High phosphorus	$21.00 to 21.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	27.01
Southern No. 2 (barge and rail)	25.18
Low phos., sil. 1 to 2 per cent, copper free	29.50 to 30.00
Silvery, sil. 8 per cent	32.29
Bessemer ferrosilicon, 14 to 15 per cent	45.79

Structural Material.—The demand for shapes is holding remarkably well, and bookings by Chicago mills total about 12,000 tons. One contract, which is included in this figure, was for 4000 tons. Fresh inquiry bulks fairly large, and is composed mainly of a large number of small projects. This is to the liking of fabricators at this time, because it probably means a wide distribution of awards and a general improvement in shop schedules. Several Chicago district shops are badly in need of work, and competition is keen. Mill deliveries are still satisfactory and there appears to be no move being made to accumulate stocks. Specifications are being received by the mills at about the rate maintained during July and are approximately equal to shipments.

The mill quotation on plain material is 2.10c. per lb. base, Chicago.

Hot-Rolled Strip.—Demand is exceptionally good, and automobile parts manufacturers have specified heavily during the week. Prices are steady at 2.60c., Chicago, for 6-in. and narrower strip, and at 2.50c. for wider material.

Billets.—The demand for small billets is steady, and the ruling price remains $35 per gross ton, Chicago. Mill bookings in this district totaled 3000 tons for the week.

Sheet Bars.—Over 7000 tons were placed this week. Prices are steady at $36 per gross ton, Chicago.

Cold-Finished Steel Bars.—Demand is active from practically all sources and particularly from manufacturers of automobiles and automobile parts. The going price is 2.50c., base, per lb., Chicago.

Bars.—Specifications for soft steel bars are heavy and are running practically as large as during July, which was one of the best summer months from the standpoint of shipments that Western mills ever experienced. Specifications from the makers of cold-drawn bars are particularly heavy, and there is no let-up in the demand from the automobile industry. Although stocks in the hands of manufacturing consumers are low and deliveries from mills are slowly extending, there is no move on the part of users to build up stocks. Specifications from the makers of farm implements have shown marked improvement during the week, and it is believed that manufacturers of that class are getting under way with their production programs in anticipation of fall trade. Mill prices are steady at 2.10c., Chicago, and lots of less than carload proportions are occasionally being taken at 2.20c. Iron bars are in greater demand from makers of ornamental iron work, but both new buying and specifications from the farm implement industry and the railroads are light. Prices remain at 2c., Chicago. Shipments of alloy steel bars are in good volume, and prices are steady. Specifications for rail steel bars are heavy, and makers are encountering some difficulty in arranging rolling schedules to build up stocks of fence post material for the fall trade. Specifications from farm equipment makers are lighter this week, but there is better demand from bed makers. Mill operations in this district are unchanged, but it is announced that

the Chicago Heights mill of the Inland Steel Co., which is on double turn, will be down for about 10 days in August while it is being changed over from steam to electric drive. Rail steel bars are unchanged at 2c., Chicago.

Mill prices per lb. are: Mild steel bars, 2.10c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 2c., base, Chicago.

Ferroalloys.—An aggregate of 500 tons of foreign spiegeleisen has been sold in the Chicago market this week. This material averages 20 per cent and is said to have been placed at between $34 and $36, seaboard, or $41.56 to $43.56, delivered. More of this material is available, and there is a fairly good demand for it. Two carlots of ferromanganese were sold $88, seaboard.

We quote 80 per cent ferromanganese, $95.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $41.76, delivered Chicago.

Bolts, Nuts and Rivets.—Although there is a substantial demand for large rivets, prices lack strength and attractive business is being taken at $2.65, base Chicago. Small lots continue to bring $2.75. Machine bolts with cut threads are firm at 50, 10 and 10 off list in less than carload lots, while 50, 10, 10 and 5 is being done on orders of carloads and larger. The demand for bolts and nuts is slowly creeping up, and specifications for July were heavier than for June and about equal to those of July last year. Specifications from the railroads are particularly heavy.

Sheets.—The local sheet market is stronger. Specifications are heavier, and makers' backlogs have extended from a week to from four to six weeks. Demand for blue annealed sheets shows marked improvement and is now on about an equal basis with the black and galvanized products. Stocks in the hands of jobbers are low, and mills are beginning to feel pressure for delivery.

Chicago delivered prices from mill are 3.30c. for No. 28 black; 2.45c. for No. 10 blue annealed; 4.45c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Wire Products.—Demand from the jobbing trade is lighter this week, but this is regarded as a normal recession which is to be expected following a buying movement such as was experienced during the last two weeks in July. The volume of business from the manufacturing trade is averaging up to the rate maintained during July. Demand for wire nails is good, with prices steady at $2.70, base, per keg, Chicago. Crop conditions throughout the country are reported as favorable, and makers of wire products look for substantial buying for fall trade within the next few weeks.

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes	3.10c.
Mild steel bars	3.00c.
Reinforcing bars, billet steel	2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons	3.60c.
Flats and squares	4.10c.
Hoops	4.15c.
Bands	3.65c.
No. 28 black sheets	4.10c.
No. 10 blue annealed sheets	3.50c.
No. 28 galvanized sheets	5.25c.
Standard railroad spikes	3.55c.
Track bolts	4.55c.
Structural rivets	3.50c.
Boiler rivets	3.70c.
	Per Cent Off List
Machine bolts	50 and 5
Carriage bolts	47½
Coach or lag screws	55 and 5
Hot-pressed nuts, square, tapped or blank	3.25c. off per lb.
Hot-pressed nuts, hexagons, tapped or blank	3.75c. off per lb.
No. 8 black annealed wire, per 100 lb.	$3.30
Common wire nails, base, per keg	3.05
Cement coated nails, base, per keg	3.05

Rails and Track Supplies.—Shipments of standard-section rails are considerably lighter, and Chicago district mills have largely completed contracts taken earlier in the year. Rollings at the Gary mill last week were 8000 tons, as against 16,000 tons for the previous week and 18,500 tons per week early in the summer. The fall buying movement is not under way, and rail mills soon may be reduced to very low operations or even idleness. The Wheeling Steel Corporation has booked 10,000 tons of steel tie plates. Chicago makers' quotations on this tonnage were $47, mill. New orders taken by Chicago mills include 1000 tons of standard-section rails, 1500 tons of steel tie plates and 1200 tons of angle bars.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. per lb. mill; track bolts with square nuts, 3.90c. mill; steel tie plates, 2.25c. to 2.35c. mill; angle bars, 2.75c. mill.

Reinforcing Bars.—Not only have awards been more liberal, but a substantial tonnage in fresh projects has made its appearance. An apartment building in Chicago brought one dealer a contract for 600 tons, and the Midwest Athletic Club, requiring 400 tons, was also placed this week. West of Chicago a single contract called for 2000 tons of rail steel, which will be shipped from Moline, Ill. The price situation is stronger in outlying districts, where 2.50c. to 2.60c., Chicago warehouse, is being obtained for billet steel reinforcing bars. In Chicago, however, 2.40c. still is the ruling price for sizable tonnages, although as high as 2.75c. is obtained for lots of less than 10 tons each. Contracts placed and fresh inquiries are shown on page 369.

Cast Iron Pipe.—The market remains active, but quotations do not average above $40 to $41, base Birmingham, for 6-in. and larger diameters. The bulk of transactions for the week came from the smaller municipalities, and individual contracts averaged less than 100 tons each. There has been a considerable tapering off of private lettings for the past two or three weeks. Mundelein, Ill., has placed 300 tons with the National Cast Iron Pipe Co., and Detroit is asking for prices on 300 tons of 6-in. Class B pipe, on which bids will close Aug. 4. Akron, Ohio, will close Aug. 13 on 300 tons of 6-in., 80 tons of 8-in., 150 tons of 10-in. and 20 tons of 12-in., all Class B pipe. Lombard, Ill., is receiving bids on 1100 tons of 6, 8, 10 and 12-in. Class B pipe. Milwaukee will close Aug. 6 on 116 tons of 36-in. and 42-in. lugged pipe and 157 tons of 20, 30, 36 and 42-in. special fittings.

We quote per net ton, delivered, Chicago, as follows: Water pipe, 4-in., $52.20 to $53.20; 6-in. and over, $45.20 to $49.20; Class A and gas pipe, $4 extra.

Old Material.—The market is marking time, and both sales to users and trades among dealers are few in number. Users, on the whole, are well supplied, and it is reported throughout the trade that rail-rerolling mills have stocks averaging from 60 to 90 days. The melt of scrap is relatively good, and buyers show no hesitancy in taking shipments against contracts. A small tonnage of heavy melting steel was sold this week at $14.50 per gross ton, delivered. Rejections at the mills are running high, and dealers are having no little difficulty in supplying the quality of steel demanded. Blast furnace grade of axle turnings brought $13 per gross ton, delivered, and short rails were taken during the week at $18 per gross ton, delivered. Railroad lists continue to bring high prices. The Burlington list, which closed last week, brought $15.40 per gross ton, delivered, for heavy melting steel, $16.75 per net ton, delivered, for railroad cast, $18.66 per gross ton, delivered, for railroad malleable and $14.05 per net ton, delivered, for No. 1 wrought. New lists include 42,500 tons advertised by the Pennsylvania, 11,000 tons by the New York Central, 4300 tons by the Chicago &

(*Concluded on page 389*)

Cleveland

July Steel Bookings Best on Record—Pig Iron Prices Discouraging

CLEVELAND, Aug. 3.—Sales totals for July compiled by Cleveland steel companies and district selling offices bear out predictions that the month would be the best July in steel trade history in point of tonnage. Sales of a leading interest in July were more than 50 per cent ahead of June sales, and July was the best month of the year for that company in the Cleveland district. While this gain in tonnage was not typical of all companies or of all products, July business as a whole surpassed all expectations. The first two business days of August have brought orders about on a par with the daily volume of the past two weeks.

Having entered the second month of the third quarter in an excellent position, Cleveland steel companies and outside mills represented here now look forward to a continuance of a high rate of demand through the remainder of the year. Reports from manufacturing consumers in varied lines generally bear out steel trade expectations of sustained industrial activity through the fourth quarter. The agricultural implement trade faces good prospects, due to more satisfactory conditions in the farming districts. Demands of the automotive industry for steel are in about the same volume as in recent weeks. Most of the automobile manufacturers in the Detroit-Cleveland territory, with the exception of the Ford Motor Co., Detroit, are continuing production at a fairly high rate.

There is disappointment in the pig iron trade that prices continue weak, despite the large volume of tonnage recently booked by the furnaces. With basic pig iron at $17.50, Valley furnaces, the prices of steel mill grades of scrap do not respond to hopes of the scrap trade for higher prices. Steel mills are well supplied with scrap, and the market is dull.

Iron Ore.—Lake Superior iron ore shipments in July were 9,999,137 gross tons, making a total for the season to Aug. 1 of 24,892,936 gross tons, compared with a total of 26,924,435 tons up to Aug. 1 of last year. This is a decrease of 2,031,491 tons, compared with last year's movement to Aug. 1, but the July movement this year showed a gain of 1,228,644 tons over that of June. In July of last year 8,531,250 tons were brought down the lakes, showing a gain for July of this year of 1,467,887 tons. Estimates as to the total ore movement for 1926 now range from 54,000,000 to 58,000,000 gross tons. Some ore is still to be bought, but this will be mainly by merchant blast furnaces, owners of which are hesitating as to whether pig iron market conditions and prices justify them in keeping their furnaces in blast. One such inquiry for 100,000 tons of ore has been pending for weeks.

Pig Iron.—With foundry consumers well covered for all of the third quarter and some of the larger consumers covered for all of the last half, the foundry iron market in this district is exceedingly quiet, a condition that is apt to continue until September, when further buying for the fourth quarter is expected to develop. Sales of foundry iron within the week amounted to several thousands of tons, all of which were in small lots for early shipment. Consumers who covered only for the third quarter are showing no interest yet in fourth quarter requirements, and some of the furnaces have not opened their books for that period beyond what is covered in contracts for the entire last half. Prices on foundry iron have not shown the strength that has usually resulted from such a large buying movement as occurred a few weeks ago. Cleveland producers are quoting $19, furnace, at points where they have a freight rate advantage, but in meeting competition of Valley furnaces at other points they have again quoted as low as $18, furnace. Standard low phosphorus iron is unchanged at $27.50, Valley furnace. Jackson, Ohio, makers of silvery iron are reported to be considering an advance in prices. The Otis Steel Co.'s No. 1 furnace, which went out June 19 for relining, has been blown in again. The McKinney Steel Co. put out a Josephine furnace on July 31.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$17.50
N'th'n No. 2 fdy., sil. 1.75 to 2.25.	19.50
Southern fdy., sil. 1.75 to 2.25...$26.51 to	27.01
Malleable	19.50
Ohio silvery, 8 per cent	30.52
Standard low phos., Valley furnace	27.50

Strip Steel.—Orders for cold-rolled strip steel have been in somewhat better volume, and mills are less inclined to make extreme concessions. Current quotations are usually on the basis of 3.60c., Cleveland or Pittsburgh, and concessions from that figure have probably been less frequent the last week. The demand for hot-rolled strip steel is well sustained, and mills continue to take a firm attitude on prices.

Structural Shapes and Reinforcing Bars.—There is a dearth of building projects involving good-sized tonnages of structural shapes or reinforcing bars, but small jobs requiring from 50 to 100 tons of steel are fairly numerous. A viaduct at Girard, Ohio, requiring 500 tons of shapes and 800 tons of bars will be awarded shortly. The Stange Construction Co., Cleveland, is low bidder.

Bolts, Nuts and Rivets.—The demand for bolts and nuts has continued in the past week at about the rate of recent weeks. Prices are being well maintained. A leading maker of rivets is operating its plant five days a week, and the demand for rivets to sustain this rate of production is fairly steady. Rivet makers are having no trouble in obtaining 2.60c. per lb., the only deviation being on rivets for freight cars, specifications for which are not as rigid as for structural and boiler rivets.

Semi-Finished Steel.—Specifications on contracts are in good volume. There is very little new business. Mills continue to quote $36, Cleveland and Youngstown, for sheet bars, and $35 for slabs and rerolling billets.

Warehouse Business.—Sales of steel out of warehouse stocks continue to suffer somewhat from the ability of mills to make fairly prompt shipments from mill rollings. Prices are unchanged.

Sheets.—The improved demand for sheets, recently noted, is maintained, but prices continue weak. Black sheets in the heavier gages have been sold as low as 2.90c., Pittsburgh, although some of the mills decline to take business below 3.05c. On blue annealed sheets the usual quotation is 2.30c., Ohio mill, but quotations as low as 2.25c. have appeared. On galvanized sheets there is more business at 4.20c. and 4.25c. than at 4.30c. Demand for automobile body sheets, fender stock, etc., has held up very well, orders in July being estimated by one or two makers at about 75 or 80 per cent of what is considered a normal volume.

Plates.—The American Shipbuilding Co., Cleveland, has received a contract from the Bradley Transportation Co. for building a new type of vessel, known as a self-unloader. About 6000 tons of steel, mostly plates, has been ordered for this boat from a Pittsburgh district mill. There is a fairly good demand for plates, with the price continuing firm at 1.90c., Pittsburgh.

Old Material.—There has been very little buying of scrap by consumers the past week, but brokers are active in trying to fill old orders. Dealers and industrial producers of scrap are somewhat disinclined to

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Mild steel bars	3.00c.
Cold-finished rounds and hexagons	3.90c.
Cold-finished flats and squares	4.40c.
Hoops and bands	3.65c.
No. 28 black sheets	3.81c. to 3.85c.
No. 10 blue annealed sheets	3.15c.
No. 28 galvanized sheets	4.70c. to 5.00c.
No. 9 annealed wire, per 100 lb	$3.00
No. 9 galvanized wire, per 100 lb	3.45
Common wire nails, base, per keg	3.00

sell at present prices, believing that the market will go slightly higher later in August or in September, and as a result of this withholding of material, brokers are having difficulty in filling their contracts without loss. Prices are unchanged, but the market has a firmer tone.

We quote per gross ton delivered consumers' yards in Cleveland:

Heavy melting steel	$14.75 to $15.00
Rails for rolling	16.25 to 16.50
Rails under 3 ft.	17.00 to 17.50
Low phosphorus billet, bloom and slab crops	18.00 to 18.50
Low phosphorus sheet bar crops.	18.25 to 18.75
Low phosphorus plate scrap	18.00 to 18.50
Low phosphorus forging crops	16.75 to 17.25
Cast iron borings	11.75 to 12.00
Machine shop turnings	10.50 to 10.75
Mixed borings and short turnings	11.75 to 12.00
Compressed sheet steel	13.00 to 13.25
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	13.75 to 14.25
Railroad malleable	18.00 to 18.50
Light bundled sheet stampings	11.25 to 11.75
Steel axle turnings	12.50 to 13.00
No. 1 cast	16.50 to 17.00
No. 1 busheling	12.00 to 12.50
No. 2 busheling	11.75 to 12.00
Drop forge flashings, 15 in. and under	11.50 to 12.00
Railroad grate bars	12.50 to 13.00
Stove plate	12.50 to 13.00
Pipes and flues	10.00 to 10.50

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes	3.34c.
Soft steel bars and small shapes	3.24c.
Iron bars	3.24c.
Iron bars, Swedish charcoal	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons	4.00c.
Flats and squares	4.50c.
Cold-rolled strip, soft and quarter hard	6.25c.
Hoops	4.49c.
Bands	3.99c.
Blue annealed sheets (No. 10 gage)	3.89c.
Long terne sheets (No. 28 gage)	6.35c.
Standard tool steel	12.00c.
Wire, black annealed	4.50c.
Wire, galvanized annealed	5.15c.
Tire steel, 1½ x ⅛ in. and larger	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger	3.65c.
Open-hearth spring steel, bases	4.50c. to 7.00c.

	Per Cent Off List
Machine bolts, cut thread	40 and 10
Carriage bolts, cut thread	30 and 10
Coach screws	40 and 10

Boiler Tubes—	Per 100 Ft.
Lap welded steel, 2-in.	$17.33
Seamless steel, 2-in.	20.24
Charcoal iron, 2-in.	35.00
Charcoal iron, 4-in.	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
½-in. butt	46	29
¾-in. butt	51	37
⅛-in. butt	53	39
2½-6-in. lap	42	35
7 and 8-in. lap	44	17
11 and 12-in. lap	37	12
Wrought Iron—		
½-in. butt	4	+19
¾-in. butt	11	+ 9
1-1½-in. butt	14	+ 6
2-in. lap	5	+14
3-6-in. lap	11	+ 6
7-12-in. lap	3	+16

Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100-lb. base box	$6.45	$6.20
Charcoal, per box—	A	AAA
IC	$9.70	$12.10
IX	12.00	14.25
IXX	13.90	16.00

Terne Plate (14 x 20 in.)

IC—20-lb. coating	$10.00 to $11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25

Sheets, Box Annealed—Black, C. R. One Pass†

	Per Lb.
Nos. 18 to 20	4.30c.
Nos. 22 and 24	4.35c.
No. 26	4.40c.
No. 28*	4.50c.
No. 30	4.70c.

Sheets, Galvanized†

	Per Lb.
No. 14	4.60c.
No. 16	4.75c.
Nos. 18 and 20	4.90c.
Nos. 22 and 24	5.05c.
No. 26	5.20c.
No. 28*	5.50c.
No. 30	6.00c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.
†Lots of 50 bundles 25c. per 100 lb. less.

New York

Heavier Barge Shipments of Pig Iron—Sustained Steel Demand Looked For

NEW YORK, Aug. 3.—Although German pig iron is still offered at $20 to $21, duty paid port of entry, aggressive selling of domestic iron, particularly for barge and barge-and-rail delivery, has been effective in shutting out foreign competition or in reducing it to negligible proportions. Moreover, quotations of as low as $20 on foreign iron are less freely made because importers are apprehensive of further advances in that material. Barge shipments from Buffalo have been commonly made during seasons of navigation, but this year eastern New York furnaces have been most active in shipping by water, not only delivering in the lighterage limits of New York and Brooklyn but also to points on Long Island Sound in New York and Connecticut. Moreover, shipments have been made by barge and rail to New Jersey destinations. Varying barge rates and complications arising from the character of the domestic and foreign competition encountered have made delivered prices, rather than furnace prices, the determining factor in sales, but in some instances quotations on New York State iron have figured back to $19, base furnace. Buffalo iron is still available at $18, base furnace, and eastern Pennsylvania iron at $20.50, furnace. Sales by local brokers during the week were light, probably not aggregating more than 5000 tons. The Burnham Boiler Corporation, Irvington, N. Y., has closed for 1200 tons of foundry iron for its Irvington plant and for all or most of its inquiry for 1000 tons for Elizabeth, N. J., but has not yet taken action on the 1500 tons wanted for Lancaster, Pa. The General Electric Co. has bought 500 tons of No. 1X foreign foundry iron and 250 tons of the same grade in domestic iron for its Lynn, Mass., plant, but has not yet closed on its inquiry for 350 tons for Bayway, N. J. Abendroth Brothers, Port Chester, N. Y., are in the market for 1000 tons of No. 2 plain and an equal tonnage of No. 2X foundry iron for fourth quarter delivery. The Standard Gas Equipment Corporation, New York, is inquiring for 500 tons each of No. 2X and No. 1X iron for shipment to its Greenville, N. J., and Baltimore plants.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East Pa. No. 2 fdy., sil. 1.75 to 2.25	$21.89 to $23.02
East Pa. No. 2X fdy., sil. 2.25 to 2.75	22.39 to 23.52
East Pa. No. 1X fdy., sil. 2.75 to 3.25	22.89 to 24.02
Buffalo fdy., sil. 1.75 to 2.25 (all rail)	22.91 to 23.91
No. 2 plain fdy., sil. 1.75 to 2.25 (by barge canal, del'd alongside in lighterage limits, N. Y. and Brooklyn)	20.00 to 21.00
No. 2 Virginia fdy., sil. 1.75 to 2.25	27.54 to 28.04

Ferroalloys.—New business in ferromanganese and spiegeleisen is scarcely heard of, but specifications on contract continue heavy at unchanged prices.

Finished Iron and Steel.—Two business days of August give promise of a continued satisfactory volume of business. The July showing, incidentally far beyond the expectations of both seller and buyer, indicates a sizable addition to the backlog of mill orders. Very generally, new business and specifications exceeded shipments in spite of the high scale of operations. Expectation is general that the amount of steel made in July will be appreciably greater than that in June. New business in July with one large steel company was nearly 2½ times its new business in June. One company's unfilled orders at the end of July were 70 per cent above those at the end of June. A company making a number of different products, averaging somewhat less than 80 per cent operations in July, is scheduled for an 85 per cent rate in August. Reasons advanced for the situation are indefinite, but the best explanation is that buyers had overdone the attempts to run with almost no stocks. Feeling that

demand is being sustained and that price tendencies are no longer downward, a broad buying attitude evidently developed under the stimulus also of an improved crop outlook, better sentiment in the securities market and an approach to stabilization in foreign exchange. All of this has occurred in the face of reduced exports and increased imports. Makers of bars who have rather large third quarter commitments closed in June on a 1.90c., Pittsburgh, basis, are finding no difficulty in selling small lots at 2.10c. The release of statements of stock tin plate bring immediate response with a quick taking of the bulk of such tin plate. July's specifications of sheets appear to be fully up to those of June. One maker shipped 20 per cent more sheet bars in July than in June, all in fact it could make above its own needs. These two factors are taken to account for fewer low price quotations on sheets. Thus 3.10c. on black sheets has been done on sizable lots. A similar story of a remarkable volume of buying in the last month could be told of most forms of finished steel, save wire and wire products. Banking on a large output in August and the usual seasonal fall increase in buying, some sellers profess to look for a higher level of prices for the fourth quarter.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. per lb.; plates, 2.24c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.24c.

Warehouse Business.—Local warehouse prices on black and galvanized sheets were advanced on the last day of the month to a basis of 4.25c. to 4.50c. and 5.25c. to 5.50c. per lb. respectively, the lower price being for bundles of 50 lots or more of both kinds of sheets. A lower price was formerly offered for bundles of 25 or more black sheets and of 50 or more galvanized. Rivets are holding firmly to 4.20c per lb. since the reduction of last week, and all other products continue on the same schedule as before. Dealers expect the large seasonal volume of business to continue throughout August, and one large warehouse reports bookings of six to eight weeks ahead, an unusual condition for this time in the year.

Reinforcing Bars.—The outstanding inquiry of the week is for a bridge to Staten Island from Elizabethport, N. J., which will require 2400 tons. Awards continue small with mill prices holding firm at 2c. per lb., base Pittsburgh, for lots of 100 tons or over, and 2.10c., base Pittsburgh, for small orders. The New York warehouse price continues at 3.15c., delivered at job. Youngstown warehouses quote 2.50c. per lb., or 2.87c., delivered New York.

Cast Iron Pipe.—Current demand is light, but a number of projects now in preparation, mostly by private companies, promise to develop into business soon. Pipe plants are booked ahead for three months on 8-in. and smaller diameters. In fact, shop operations are so good that 1926 is expected to show an even larger production of cast pipe than 1925, which established a new record. The city of New York is expected to enter the market for 10,000 tons some time this month. Fort Lauderdale, Fla., took bids today on a water works system to cost $3,000,000.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 to $57.60; 3-in., $65.60 to $67.60; with $5 additional for Class A and gas pipe.

Coke.—Although a fair number of small inquiries for foundry coke have appeared, the market is still seasonably dull. The adjustment of production to demand, together with increasing sales of fuel for export, has put Connellsville producers on a firmer footing. The leading producer of by-product foundry coke in this district is booked for several months ahead. The renewal of a contract for 3000 tons of beehive foundry coke is reported. As yet little demand for domestic coke has developed. Standard beehive foundry coke continues to range from $4 to $5, Connellsville, and furnace coke is available at $2.85 to $3.25. Delivered prices of Connellsville foundry coke are $7.91 to $8.91 to Newark and Jersey City, $8.03 to $9.03 to northern New Jersey, and $8.79 to $9.79 to New York or Brooklyn. By-product foundry coke ranges from $9.59 to $10.77, delivered Newark or Jersey City.

Old Material.—Dealers are having some difficulty in covering their orders for heavy melting steel with eastern Pennsylvania mills. They are freely offering $12.35 per gross ton, New York, and in some cases have paid as high as $12.85. In terms of delivered prices at mills the range of the buying market is from $15 to $16, and occasionally higher. With a Pencoyd, Pa., consumer in the market for about 10,000 tons and other steel works showing more interest in additional supplies, brokers are disposed to raise their selling prices. Buying prices for yard heavy melting have also advanced, as high as $14 to $14.50, delivered Phoenixville and Harrisburg, Pa., having been done. Rerolling rails, iron axles, forge fire, borings, turnings and specifications pipe are also stronger. There appears to be a growing scarcity of stove plate, although buying prices are unchanged.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$10.50 to $11.00
Heavy melting steel (railroad or equivalent)	12.35 to 12.85
Rails for rolling	12.75 to 13.00
Steel car axles	19.00 to 19.50
Iron car axles	22.50 to 23.00
No. 1 railroad wrought	13.75 to 14.25
Forge fire	10.50 to 11.00
No. 1 yard wrought, long	12.75 to 13.25
Cast borings (steel mill)	10.00 to 10.50
Cast borings (chemical)	12.50 to 13.00
Machine shop turnings	10.00 to 10.50
Mixed borings and turnings	10.00 to 10.50
Iron and steel pipe (1 in. diam., not under 2 ft. long)	11.25 to 11.75
Stove plate (steel mill)	10.00 to 10.25
Stove plate (foundry)	11.00
Locomotive grate bars	11.00 to 11.50
Malleable cast (railroad)	16.00 to 16.50
Cast iron car wheels	12.75 to 13.25
No. 1 heavy breakable cast	12.25 to 14.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$16.50 to $17.00
No. 1 heavy cast (columns, building material, etc.), cupola size	15.00 to 15.50
No. 2 cast (radiators, cast boilers, etc.)	14.00 to 14.50

Philadelphia

Steel Bookings Sustain Mill Operations—Softer Tone in Pig Iron

PHILADELPHIA, Aug. 3.—Specifications and new business coming to the steel mills in this district are comparatively small in individual lots, but in the aggregate reach good-sized tonnages and make it possible to maintain operations at an unchanged rate. Prices of rolled products are stationary, but in the case of pig iron there is a somewhat softer tone.

Considerable strength exists in the scrap market. A number of grades have advanced, including heavy melting steel, which now is quoted at $15.50 to $16.50, with some dealers holding for $17.

When the industry is surveyed as a whole, it is found to hold up well for this season of the year. The so-called summer "dip" is absent, and while orders and production are rather well balanced, leaving mills operating on a close margin, new tonnages coming to them make it possible to keep operations at a fairly satisfactory rate.

Pig Iron.—The market shows little activity as a general thing, with some furnaces reporting a moderate amount of tonnage booked. There is a somewhat softer tone existing, although prices are unchanged. Reports are in circulation of basic iron declining 50c. to $20.50, delivered, and while a small tonnage is understood to have been booked at this figure, the prevailing price quoted continues to be $21. Foundries are covered for most of the third quarter, and little talk is heard as yet regarding fourth quarter contracts. The furnace interests are hoping they will not have to meet the pressure as to prices for fourth quarter foundry iron that they met during the third quarter and that, therefore, the price situation may be better from their point of view. Foundry iron that is moving under new orders

at present is largely for filling-in purposes. No. 2 plain continues to be quoted at $21, furnace, with the usual differentials for the other grades. There appears to be less competition with foreign iron for the present. It is claimed that when laid down with duty paid, foreign iron almost approaches domestic iron in price. Sales of copper-bearing low phosphorus iron during the past week showed an increase and ranged from lots of 200 to 1000 tons, at the usual going prices.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$21.76 to $22.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	22.26 to 22.76
East. Pa. No. 1X	22.76 to 23.26
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic delivered eastern Pa.	21.00 to 21.25
Gray forge	21.50 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	22.00 to 23.00
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00

Plates.—Moderate-sized bookings of plates are being made by the mills. Orders are being received from miscellaneous sources, and present indications are that August operations will be maintained at the rate prevailing during July. The price of 1.90c., base Pittsburgh, remains steady. The Norfolk & Western Railway is inquiring for 10 locomotives. The William Cramp & Sons Ship & Engine Building Co. has been awarded three hydroelectric units for the power development at Conowingo, Pa., of the Philadelphia Electric Power Co. The contract calls for the design and construction of three vertical-shaft hydraulic turbines of 54,000 hp. each. It is stated that these units will be the largest hydraulic turbines in point of physical dimensions ever constructed. No estimate has been made of the steel tonnage that will be required.

Bars.—Soft steel merchant bars are holding firmly at 2c., base Pittsburgh. August operations are starting at the same rate as those which existed during July, and producers expect them to be maintained throughout the month. Demand for iron bars is light, with the price unchanged at 1.90c., base Pittsburgh. Fair activity is shown in the demand for reinforcing bars.

Billets.—The market for billets remains unchanged at $35, Pittsburgh, for rerolling material, and at $40, Pittsburgh, for forging steel.

Ferroalloys.—The market for ferromanganese is extremely quiet. Tonnages being sold involve only carlots, since consumers are well covered. The general quotation on domestic ferromanganese is $88, furnace, while English ferromanganese is not a market factor at present in view of the nominal quotation of $100, seaboard.

Structural Material.—Fabricators report that business is good. Contracts are for small jobs in most instances but when combined make an attractive volume. Some mills are behind in deliveries in certain sizes of structural material, although old commitments are rapidly disappearing, so that the price of 2c., base Pittsburgh, is becoming more firmly established. The largest inquiry out is for approximately 3000 tons for the Wellington Apartment, Philadelphia, bids for which will be closed the end of the present week. A bank and arcade to be built at Atlantic City went to the George A. Fuller Co., New York, and will require about 550 tons of steel.

Imports.—Pig iron imports at Philadelphia last week totaled 2126 tons, another decline from the previous week. The Netherlands furnished 930 tons, British India 746 tons and Germany 450 tons. Other imports were 559 tons of steel blooms from France and 100 tons of muck bars from Sweden.

Old Material.—Added strength has developed in the market for iron and steel scrap, with a number of grades showing higher prices. Heavy melting steel now is quoted, on the basis of sales, at $15.50 to $16.50, with some dealers holding for $17. Dealers have paid as high as $16 to cover contracts which had been taken at a lower figure, and continue to be cautious about selling. At the same time it is evident that steel mills are resisting higher quotations with considerable vigor and are not coming into the market freely. The stronger price situation is not due so much to actual transactions as to a reaction against what dealers say were low prices. There appears to be a temporary deadlock between seller and buyer, with the outcome dependent upon the turn of the steel market as well as the old material market. Dealers report that it is difficult to buy some of the leading grades.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$15.50 to $16.50
Scrap rails	15.00 to 16.50
Steel rails for rolling	15.50 to 16.50
No. 1 low phos., heavy, 0.04 per cent and under	20.00 to 21.00
Couplers and knuckles	18.50 to 19.00
Rolled steel wheels	18.00 to 18.50
Cast iron car wheels	17.00 to 17.50
No. 1 railroad wrought	16.50 to 17.00
No. 1 yard wrought	16.00 to 16.50
No. 1 forge fire	13.50 to 14.00
Bundled sheets (for steel works)	13.50
Mixed borings and turnings (for blast furnace)	12.50 to 13.50
Machine shop turnings (for steel works)	13.50 to 14.00
Machine shop turnings (for rolling mills)	13.50 to 14.00
Heavy axle turnings (or equivalent)	14.00 to 14.50
Cast borings (for steel works and rolling mill)	14.00
Cast borings (for chemical plant)	15.00 to 15.50
No. 1 cast	17.00 to 18.00
Heavy breakable cast (for steel works)	16.50 to 17.00
Railroad grate bars	14.50
Stove plate (for steel works)	14.50
Wrought iron and soft steel pipes and tubes (new specifications)	14.50 to 15.50
Shafting	20.00 to 21.00
Steel axles	22.00 to 22.50

Technical Sessions to Be Held in Connection with New Haven Exhibition

Inspection, individual vs. group motor drives, coining press work, and apprenticeship are among the subjects planned for discussion at the technical sessions to be held in connection with the sixth annual New Haven machine tool exhibition at Mason Laboratory, Yale University, Sept. 7, 8, 9 and 10.

The technical meetings are under the auspices of the machine shop practice division of the American Society of Mechanical Engineers. The morning sessions will be called at 10.30 a. m., and the evening session on Sept. 9, which will take the form of a symposium on "What's New in the Machine Tool Industry?" at 8 p. m. A dinner and round table discussion to be held on the evening of Sept. 8 will be a feature as heretofore. Various standardization committees of the A. S. M. E. will meet during the afternoons of the four days of the exhibition.

Carl Dietz, president of the Bridgeport Brass Co., Bridgeport, will preside at the opening meeting on the morning of Sept. 8. Papers at this session include "Sane Specifications and Intelligent Inspection," by Gen. C. L. H. Ruggles, Ordnance Department, United States Army, and "Individual Motor Drive Units vs. Group Drive for Machine Tools," by F. H. Penny, General Electric Co., Schenectady.

Thursday, Sept. 9, has been designated as executives' day. Papers on "Machine Tools and Progress," by Dean Dexter S. Kimball, Cornell University, and "The District Apprenticeship System," by H. S. Falk, vice-president and works manager of the Falk Corporation, Milwaukee, will be presented on the morning of Sept. 9. C. R. Burt, vice-president and general manager of the Pratt & Whitney Co., Hartford, will preside.

"The Coining Press in the Machine Shop; Some Hitherto Unrealized Values," a paper by R. V. Crane of the E. W. Bliss Co., Brooklyn, N. Y., is scheduled for presentation on Friday morning, Sept. 10. A progress report of the A. S. M. E. special research committee on gears will also be read by Prof. Earle Buckingham, Massachusetts Institute of Technology, Cambridge, Mass. The chairman of this session will be W. F. Dixon, works manager Singer Mfg. Co., Elizabethport, N. J., and chairman of the machine shop practice division of the A. S. M. E.

San Francisco

Demand for Steel Is Slack—New Permit Is Asked for Mokelumne Project

SAN FRANCISCO, July 31. (*By Air Mail*).—A new electric power project on the Mokelumne River, to cost $6,500,000, is proposed by the East Bay Municipal Utility District, Oakland, Cal., which has applied to the State Division of Water Rights for a permit to divert an additional 375 cu. ft. of water per sec. from the Mokelumne River, and to store an additional 217,000 acre ft. annually in the Lancha Flana reservoir. If the permit is granted, the additional water will augment the power-generating capacity to be controlled by the district, by 13,849 hp., which will make a total of more than 28,000 hp. No additional reservoir or power house will be required, it is said, although an extra unit will be added to the power house as now contemplated, and probably an additional penstock will be built. The additional water to be diverted will be used to develop power needed for pumping the waters of the Mokelumne into the district's mains. The terms under which the permit is sought provide for completion of the additional unit by Jan. 1, 1929.

Both demand and inquiry for steel continue slack. Prices, generally, are firm, except on sheets, for which quotations are irregular, despite the few inquiries and moderate buying.

Pig Iron.—The Southern Pacific Co., San Francisco, has placed about 100 tons of Bessemer pig iron with an Eastern producer. Midsummer quiet characterizes this department of the market, and no inquiries of importance are known to be pending.

*Utah basic	$26.00 to $27.00
*Utah foundry, sil. 2.75 to 3.25	26.00 to 27.00
**English foundry, sil. 2.75 to 3.25	25.00
**Indian foundry, sil. 2.75 to 3.25	25.00
**German foundry, sil. 2.75 to 3.25	23.00 to 23.50
**Dutch foundry, sil. 2.75 to 3.25	22.50
**Belgium foundry, sil. 2.75 to 3.25	22.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Lettings total 1386 tons; fresh inquiries call for 1900 tons. The firmness of Eastern mill quotations continues, with practically all producers quoting plain material at 2.35c., c.i.f. Coast ports. One mill is understood to have refused to take a moderate-sized tonnage monthly for the balance of this year at less than 2.35c.

Plates.—The 300 tons required by the American Factors, Ltd., for a pipe line near Honolulu, T. H., has been placed in Chicago. The 1450 tons for the Lemon Grove and Spring Valley Irrigation district, La Mesa, Cal., is understood to have been placed with an unnamed Los Angeles fabricator. Bend, Ore., is asking for bids on two 1,500,000-gal. steel reservoirs, which will require about 375 tons. The Bureau of Reclamation, Orland, Cal., is expected to come into the market in the near future for about 500 to 750 tons of steel for the Orland project. Eastern mills are holding quotations firmly at 2.30c., c.i.f. Coast ports.

Bars.—Lettings in reinforcing bars during the week total about 1000 tons. Several fresh inquiries have come up for figures both here and in Southern California. Belgian reinforcing bars have been quoted during the week at 1.75c., c.i.f., duty paid, and one quotation at 1.65c. is reported but unconfirmed. Local concrete bar jobbers quote domestic steel as follows: 2.80c., base, per lb. on lots of 250 tons; 2.95c., base, per lb. on carload lots, and 3.20c., base, on less than carload lots.

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	3.30c.
Mild steel bars and small angles	3.30c.
Small channels and tees, ¾-in. to 2¾-in.	3.90c.
Spring steel, ¾-in. and thicker	7.00c.
No. 28 black sheets	4.90c.
No. 10 blue annealed sheets	3.90c.
No. 28 galvanized sheets	6.00c.
Common wire nails, base per keg	$3.75
Cement coated nails, base per keg	3.00

Cast Iron Pipe.—The cities of Seattle and Tacoma, Wash., have placed 1000 tons of 8-in. and 12-in. Class B cast iron pipe with the American Cast Iron Pipe Co. Los Angeles is inquiring for about 111 tons of 48-in. Class A cast iron pipe under Specification 1356. Quotations are unchanged at $50 to $52 base, water shipment, San Francisco.

Steel Pipe.—The Pacific Gas & Electric Co., San Francisco, has placed 100 tons of standard steel pipe with an Eastern mill, and the Coast Counties Gas Co., Santa Cruz, Cal., has closed on 125 tons.

Warehouse Business.—Despite the fact that the first five days of July brought little business to local jobbers, the month as a whole showed a gain in sales over June. Individual orders continue small, but the aggregate is fairly substantial. Prices are unchanged.

Rails.—A local firm during the week received a shipment of about 100 tons of standard-section rails from Belgium.

Coke.—Sales continue in good volume, and several fresh inquiries for moderate-sized tonnages have come out during the week. German by-product coke is quoted at about $12 to $12.50 per net ton at incoming dock.

Old Material.—While the amount of scrap sold thus far this year has exceeded the tonnage consumed during the first seven months of 1925 individual orders, for the most part, have been relatively smaller. Little buying is being done at present, and quotations remain at about $10 to $10.50 per gross ton, delivered to consumer's yards.

St. Louis

More Active Pig Iron Buying Fails to Stiffen Prices—Scrap Stronger

ST. LOUIS, Aug. 3.—Buying of pig iron has gained in volume, following the recent lull, a total of 15,000 tons having been reported sold by the St. Louis Coke & Iron Corporation. These sales included foundry, malleable and basic iron, but principally the latter grade. There is a fair amount of scattered inquiry for carlots for prompt shipment, and the melt is holding up seasonably well. Sellers report heavy shipments on contracts and a general desire on the part of their customers to get deliveries on their iron. Prices, however, are failing to show any strength, and cutting below published quotations is common, particularly in the case of Northern iron. Jobbing foundries and stove plants have booked some new business, and expect to make heavy shipments of finished goods this month.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$22.66 to $23.16
Northern malleable, sil. 1.75 to 2.25	22.66 to 23.16
Basic	23.16 to 24.16
Southern fdy., sil. 1.75 to 2.25	24.42 to 25.42
Granite City iron, sil. 1.75 to 2.25	22.81 to 23.31

Finished Iron and Steel.—Distributers of iron and steel from stock report their July business as satisfactory and above expectations. The movement of standard structural shapes and reinforcing material was particularly good, and slight betterment was noted in the demand for wire and wire products. Fabricating shops are busy on small jobs, which are appearing steadily in fair volume, but no large contracts have been placed. Hoops, bands and cotton ties are in brisk demand from the South. Sheet demand has receded during the past 10 days, but prices hold firm. Oil country goods continue active, and throughout this territory there is an exceptionally heavy call for storage tanks for new filling stations.

Coke.—The demand for foundry coke for immediate delivery holds up unusually well for this time of year, but contracting has been about completed. The by-product interests are operating at or near capacity, and their reserve stocks are increasing, though storage piles are much smaller than at this time last year or in 1924. The past two weeks have witnessed a moderate

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes	3.25c.
Bars, mild steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.70c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.75c.
Structural rivets	3.65c.
Boiler rivets	3.85c.
	Per Cent Off List
Tank rivets, ⅞-in. and smaller	70
Machine bolts	50 and 5
Carriage bolts	47½
Lag screws	55 and 5
Hot-pressed nuts, square, blank or tapped	3.25c. off per lb.
Hot-pressed nuts, hexagons, blank or tapped	3.75c. off per lb.

improvement in demand from dealers in domestic coke, and further betterment is looked for by the middle of this month. Some slowing down in demand for industrial coke is noted, and specifications are smaller than a few weeks back.

Old Material.—The steel mills are angling for supplies, but their views on prices differ from those of dealers, with the result that actual sales are not impressive. The dealers, however, continue to bid up prices in order to secure material for delivery on old orders, and the market is strong, several items having reached new high levels on the present upward movement. One East Side mill is in the market for a round tonnage of rails and steel specialties. More activity is being displayed by the rolling mill interests, but foundry grades, with the exception of stove plate, are dull. Railroads are still selling considerable scrap, and incidentally realizing top prices on everything they dispose of. The following lists were before the market: Pennsylvania, 46,000 tons; Big Four, 5400 tons; Missouri Pacific, 4000 tons; Mobile & Ohio, 800 tons; St. Louis-San Francisco, 600 tons, and Monon, 650 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

	Per Gross Ton	
Iron rails	$12.00 to	$12.50
Rails for rolling	17.00 to	17.50
Steel rails less than 3 ft.	17.00 to	17.50
Relaying rails, 60 lb. and under	20.50 to	23.50
Relaying rails, 70 lb. and over	26.50 to	29.00
Cast iron car wheels	15.50 to	16.00
Heavy melting steel	13.50 to	14.00
Heavy shoveling steel	13.50 to	14.00
Frogs, switches and guards cut apart	15.50 to	16.00
Railroad springs	18.00 to	18.50
Heavy axle and tire turnings	11.00 to	11.50
No. 1 locomotive tires	16.00 to	16.50
	Per Net Ton	
Steel angle bars	13.75 to	14.25
Steel car axles	20.00 to	20.50
Iron car axles	21.50 to	22.00
Wrought iron bars and transoms	20.50 to	21.00
No. 1 railroad wrought	12.25 to	12.75
No. 2 railroad wrought	12.00 to	12.50
Cast iron borings	9.75 to	10.25
No. 1 busheling	11.00 to	11.50
No. 1 railroad cast	14.75 to	15.25
No. 1 machinery cast	17.00 to	17.50
Railroad malleable	13.50 to	14.00
Machine shop turnings	6.75 to	7.25
Bundled sheets	6.75 to	7.25

Boston

Pig Iron Prices Weaker—Iron Imports Decline Sharply—Scrap Active

BOSTON, Aug. 3.—Competition between eastern New York State furnaces and the Mystic Iron Works for business in New England has practically eliminated sales of foreign pig iron. The Mystic Iron Works has lowered its base price from $21 to $20, and in some instances has waived the differential for No. 2X foundry iron in soliciting business. A Springfield, Mass., foundry has bought 750 tons of No. 2X and 250 tons of No. 1X New York State iron at approximately $21.39 a ton delivered, or $19, furnace, and a Connecticut foundry has placed 1000 tons of No. 1X foundry iron with the same furnace for barge shipment at $21.35, delivered alongside dock. These prices are equivalent to $16.48 and $16.44, respectively, Buffalo furnace. One New York State furnace which heretofore has held to $20, furnace, has shaded that price. Sales of eastern and western Pennsylvania, Virginia and Alabama irons are limited to small tonnages for mixture purposes, since they bring much higher prices than New York State iron. Sales the past week approximated 6000 tons. A Massachusetts valve manufacturer, who recently bought, is negotiating for an additional tonnage, and a few foundries in and close to Worcester, Mass., are sounding out the market. Open inquiries have petered out, however. Some of the recent heavy buyers of iron took enough to last through 1926, and a few will have shipments lapping over into 1927.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$24.15 to	$24.65
East. Penn., sil. 2.25 to 2.75	24.65 to	25.15
Buffalo, sil. 1.75 to 2.25	22.91 to	23.91
Buffalo, sil. 2.25 to 2.75	23.41 to	24.41
Virginia, sil. 1.75 to 2.25	27.92 to	28.42
Virginia, sil. 2.25 to 2.75	28.42 to	28.92
Alabama, sil. 1.75 to 2.25		30.60
Alabama, sil. 2.25 to 2.75		31.10

Finished Material.—Plates are holding at 1.90c. per lb., base Pittsburgh. While 2c. per lb., base Pittsburgh, is the going price on the average run of business in structural steel, 1.90c. can be done on large tonnages of standard shapes. Efforts by mills to strengthen bar prices are meeting with little success, and current business is being taken at 2c. per lb., base Pittsburgh. It now develops that New England manufacturing interests, when bars were last advanced, bought large tonnages of Belgian bars at materially lower prices.

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Soft steel bars and small shapes	3.265c.
Flat, hot rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway, rounds	6.60c.
Norway, squares and flats	7.10c.
Structural shapes—	
Angles and beams	3.365c.
Tees	3.365c.
Zees	3.465c.
Plates	3.365c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold-rolled steel—	
Rounds and hexagons	3.95c.
Squares and flats	4.45c.
Toe calk steel	6.00c.

Imports.—Imports of pig iron in July slumped about 50 per cent, totaling 2423 tons, which was Continental iron. It was the smallest importation for any one month in considerably more than a year. Imports for June were 4936 tons and July, last year, 4869 tons. Three lots of ore, 4149 tons, 8482 tons and 9956 tons respectively, a total of 22,587 tons, were received by the Mystic Iron Works in July, which compares with 33,396 tons in June.

Coke.—The Providence Gas Co., followed by the New England Coal & Coke Co., has announced that August shipments against by-product foundry coke contracts will be at $12 a ton delivered within a $3.10 freight rate zone, which is the same price that governed in July. Foundries in general had anticipated a reduction in price. Melters have been specifying minimum amounts, and August shipments from ovens are starting slowly. Connellsville foundry coke is obtainable at considerably less than New England fuel, and a few orders were placed in this district the past week.

Cast Iron Pipe.—Attleboro, Mass., has awarded a round tonnage of 24-in. pipe to the Warren Foundry & Pipe Co. This was the only municipal letting the last week. Boston closed bids today on 300 tons of 24-in. pipe and Marblehead, Mass., will receive tenders Aug.

6 on an equal amount of 20-in. A sizable number of small tonnages, which form a fair total in the aggregate, have been privately placed with most of the pipe makers, and the same is true of gas pipe. Prices on small pipe remain firm, while those on large sizes are subject to concession. Quotations made openly are: 4-in., $60.10 a ton, delivered at common Boston freight rate points; 6 to 12-in., $55.10 to $56.10; larger pipe, $54.10 to $55.10. The usual $5 differential is asked on Class A and gas pipe.

Old Material.—Old material among dealers is more active than it has been in some time. Most of the trade anticipate higher prices, and current activity is lifting quotations to some extent. Mills, however, are resisting price advances. Most of the current buying is against old contracts. Heavy melting steel is no higher, $11.50 a ton on cars representing the top price. The lowest price reported, however, is $11, whereas 10 days or so ago material was bought for slightly less. Shipments against chemical boring contracts have resumed, and the market is firmer. Rolling mill borings and mixed borings and turnings also are somewhat firmer, while bids for forged scrap, bundled skeleton and flashings have been raised approximately 25c. a ton.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	$19.50 to $20.00
No. 1 machinery cast	19.00 to 19.50
No. 2 machinery cast	17.00 to 18.00
Stove plate	13.00 to 13.50
Railroad malleable	19.00 to 19.50

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$11.00 to $11.50
No. 1 railroad wrought	12.00 to 12.50
No. 1 yard wrought	11.00 to 11.25
Wrought pipe (1 in. in diameter, over 2 ft. long)	10.00 to 10.50
Machine shop turnings	8.50 to 9.00
Cast iron borings, chemical	10.00 to 10.50
Cast iron borings, rolling mill	9.00 to 9.25
Blast furnace borings and turnings	8.25 to 8.75
Forged scrap	9.00 to 9.75
Bundled skeleton, long	9.00 to 9.75
Forged flashings	9.00 to 9.75
Bundled cotton ties, long	8.25 to 8.50
Bundled cotton ties, short	9.00 to 9.50
Shafting	15.50 to 16.00
Street car axles	15.50 to 16.00
Rails for rerolling	12.00 to 12.50
Scrap rails	11.00 to 11.25

Buffalo

Pig Iron Inquiry Diminishes—Heavy Melting Steel Stronger

BUFFALO, Aug. 3.—The Massey-Harris Harvester Co., Batavia, N. Y., has bought 3000 tons of foundry and malleable pig iron. It is understood the tonnage was placed with a nearby furnace having a freight rate advantage over Buffalo. A Buffalo furnace took 850 tons which the General Electric Co. sought for its Elmira, N. Y., plant, but so far as is known that company's inquiry for Bayway, N. J., is still open. A Buffalo furnace is believed to have taken 2500 tons of the 3700 tons inquired for by the Burnham Boiler Corporation, Irvington, N. Y. The price of $20, furnace, on business in this district remains unbroken, and in general the price of $19, furnace, on business placed in the East is holding, though there have been some instances of $18 being done by a Buffalo furnace on New England tonnage. Inquiry this week is confined to small lots.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdy., sil. 1.75 to 2.25	$19.00 to $20.00
No. 2X foundry, sil. 2.25 to 2.75	19.50 to 20.50
No. 1X foundry, sil. 2.75 to 3.25	20.50 to 21.50
Malleable, sil. up to 2.25	20.00
Basic	19.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Specifications are fairly good, although new inquiry is not heavy. Bars are steady at 2.265c. to 2.365c., Buffalo, and shapes at 2.265c. Sheet inquiry is fair, with 3.10c., Pittsburgh, being named on black and 4.20c. on galvanized. Pipe specifications are reported satisfactory, particularly in lap-weld sizes for oil field use, deliveries on which are running into September. Bolt prices are firm, with specifications good. Small jobs occupied the attention of reinforcing bar dealers during the week, with nothing sizable pending, except 150 tons for Erie County roads. Reinforcing bar plants operated at capacity during July.

Old Material.—Unexpected purchases of several thousand tons of heavy melting steel by a local mill have strengthened the market at a time when it showed signs of softening. The price paid was $16.50. The same interest bought hydraulic compressed sheets at $15.50. Another local consumer has found it necessary to increase its heavy melting steel offering price to $15 to $15.50. Dealers are increasingly reluctant to sell at this price. Two consumers are making a brisk bid for the available borings and turnings for blast furnace consumption and sales of this grade have been made at $13, though the going price is nearer $12 to $12.50. Demand for No. 1 cast and stove plate continues fairly active, but business in the specialties is stagnant.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$15.00 to $15.50
Selected No. 1 heavy melting steel	16.00 to 16.50
Low phosphorus	17.50 to 18.00
No. 1 railroad wrought	14.00 to 14.50
Car wheels	17.00 to 17.50
Machine shop turnings	9.50 to 10.00
Mixed borings and turnings	12.00 to 12.50
Cast iron borings	11.50 to 12.00
No. 1 busheling	15.00 to 15.50
Stove plate	15.25 to 15.50
Grate bars	13.00 to 13.50
Hand-bundled sheets	10.00 to 10.50
Hydraulic compressed	15.00 to 15.50
No. 1 machinery cast	16.00 to 16.25
Railroad malleable	16.50 to 17.00
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50
Drop forge flashings	13.25 to 13.75

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes	3.40c.
Mild Steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 28 black sheets	4.45c.
No. 10 blue annealed sheets	3.80c.
No. 28 galvanized sheets	5.60c.
Common wire nails, base per keg	$3.90
Black wire, base per 100 lb	3.90

Birmingham

Blast Furnaces Well Booked—Soil Pipe Makers Curtail Output

BIRMINGHAM, Aug. 3.—No summer dullness will be felt in the pig iron market in Alabama this year, since sales during the latter part of June and intermittently through July cover a very large proportion of the probable production for the third quarter. Some few sales for fourth quarter are again reported, but nothing resembling a buying movement for that period has set in. Larger producers of merchant iron in this district are holding firmly to $21 per ton, Birmingham, for No. 2 foundry. Reports were current that some iron had been sold at $20.50, but verification is lacking. So far, the small tonnage sold for delivery during the fourth quarter has commanded $21, and no intimation is given that there will be a reduction from that figure. A survey of foundries shows a slight recession in the operations of producers of cast iron soil pipe and fittings. The pressure pipe makers have enough orders in hand and in sight to warrant active operation of all plants through the year. No surplus stocks of pressure pipe are on hand. The surplus stock of foundry iron shows no increase for the week, and during the past month, it is said, declined. Progress is noted on the three blast furnaces under construction, but none is

expected to reach completion before the end of the year. Stove foundries are buying less actively, having covered most of their requirements.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$21.00
No. 1 foundry, 2.25 to 2.75 sil.	21.50
Basic	21.00
Charcoal, warm blast	30.00

Rolled Steel.—Active operations, heavy shipments and steady business characterize the steel industry here. Curtailment of operations by the Gulf States Steel Co. to permit of repairs to a blast furnace and open-hearth furnaces will not disturb the steel production, since surplus billets will provide the requirements of the finishing mills. Rapid progress has been made on the four new open-hearth furnaces of the Tennessee Coal, Iron & Railroad Co. at its Fairfield plant, and indications now are that they will be completed 90 days sooner than originally planned. This will increase the steel output of the district and make it possible to keep all finishing plants here in full operation. The two 600-ton blast furnaces which the Tennessee company is building will not be finished until early next year. Bars and structural shapes continue to range from 2.15c. to 2.25c., base Birmingham, and plates from 2.05c. to 2.15c.

Cast Iron Pipe.—Pressure pipe shops are operating practically at capacity, and shipments are as steady as the output. Considerable pipe is being moved by water from this district, using the Government barge service. Cast iron pressure pipe is still quoted at $40, Birmingham, for 6-in. and larger diameters.

Coke.—Contracts for foundry coke now booked and business now pending promise to keep by-product ovens in full operation for some time. Prices remain at $5.50 per net ton, Birmingham, with $6 being asked on spot coke and for small lots. Shipments from the district are large.

Old Material.—With the exception of cast scrap, old material is quiet. Heavy melting steel is at a standstill. The larger consumers evidently intend to melt all of the material they have bought before re-entering the market. There is no scarcity of scrap.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	12.00 to 13.00
Railroad wrought	12.00 to 13.00
Steel axles	17.00 to 18.00
Iron axles	17.00 to 18.00
Steel rails	13.00 to 14.00
No. 1 cast	16.50 to 17.00
Tramcar wheels	16.00 to 17.00
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	7.50 to 8.00
Cast iron borings	7.50 to 8.00
Rails for rolling	15.00 to 16.00

Completes Facilities for World Water Shipments from Birmingham

BIRMINGHAM, Aug. 2.—The Interstate Commerce Commission has passed favorably on the petition of the Warrior River Terminals Co. to purchase the railroad from Ensley to the Warrior River and to enter into agreement with the Birmingham Southern Railroad and the Tennessee, Coal, Iron & Railroad Co. for trackage and switching connections and as a consequence the barge service on the Warrior River from Birmingham to all parts of the world is now complete.

Imports of manganese ores into the United States in May, as expressed in manganese content, are reported by the Bureau of Foreign and Domestic Commerce at 21,633 gross tons, valued at $721,948. Of these imports 12,472 tons came from Russia, 3764 tons from British India, 3047 tons from Brazil, 2346 tons from British West Africa and 4 tons from Germany.

Cincinnati

Ironton Furnaces Well Booked—Dealers' Market in Scrap

CINCINNATI, Aug. 3.—Midsummer dullness pervades the local pig iron market. Sales in the past week were light and consisted of small lots, ranging from single carloads up to 250 tons. Despite the lack of interest shown by consumers, southern Ohio foundry iron gradually is accumulating strength. One Ironton producer is unable to supply iron for this quarter, and another is quoting $20, base furnace. However, recent bookings have been on the basis of $19.50, which is more representative of the market. Whether the attempt to advance the price 50c. a ton will be successful depends upon how actively the Lake and Valley furnaces will compete for business in this territory. Malleable iron is being held at $19.50, base furnace, although producers are shading this schedule 50c. in central Ohio. Reports persist that northern Alabama iron is available at $20.50, base Birmingham, but furnaces in the Birmingham district are holding rigidly to $21, base Birmingham. Jackson County silvery iron is quiet at $27.50 for 8 per cent. The only inquiry of consequence is from the Indiana State Reformatory, Pendleton, Ind., for 150 tons of silvery and 350 tons of foundry iron. The Roane Iron Co., Rockwood, Tenn., has blown out its No. 1 furnace and put in its No. 2 furnace.

Based on freight rates of $3.69 from Birmingham and $1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 -(base)	$24.19 to $24.69
Alabama fdy., sil. 2.25 to 2.75	24.69 to 25.19
Tennessee fdy., sil. 1.75 to 2.25	24.69
Southern Ohio silvery, 8 per cent	30.39
So. Ohio fdy., sil. 1.75 to 2.25	21.39
So. Ohio malleable	20.89

Reinforcing Bars.—The Hodges Construction Co., Cincinnati, has been awarded a general contract for the elimination of the Red Bank grade crossing in this city. This job will require 100 tons of bars. Bids are being taken on approximately 400 tons for the Hamilton Community Hotel, Hamilton, Ohio. Otherwise, new projects call for lots ranging from 25 to 75 tons. New billet bars are bringing 2c., base Pittsburgh, and rail steel bars 1.90c., mill.

Warehouse Business.—Sales in July exceeded those in June. There has been a heavy demand for bars and tank plates, but the movement of structural steel has fallen off. Prices are firm and unchanged.

Finished Material.—Specifications and orders in July equaled those in the previous month and considerably surpassed those in the corresponding month last year. While there has been a slight lull during the past week, the bookings earlier in July assured an unusually good record for the month. Consumers are buying only what is necessary for their immediate requirements, and in no case are they interested in contracting for deliveries later than Sept. 15. So much business has been placed with producers in recent

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes	2.40c.
Bars, mild steel or iron	3.20c. to 3.30c.
Reinforcing bars	3.20c. to 3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel	4.75c. to 5.00c.
No. 28 black sheets	4.10c. to 4.30c.
No. 10 blue annealed sheets	2.60c.
No. 28 galvanized sheets	5.25c. to 5.40c.
Structural rivets	3.75c.
Small rivets	65 per cent off list
No. 9 annealed wire, per 100 lb	$3.00
Common wire nails, base per keg	2.95
Cement coated nails, base per 100-lb. keg	3.15
Chain, per 100 lb	7.55
	Net per 100 Ft.
Lap welded steel boiler tubes, 2 in.	$18.00
4-in.	33.00
Seamless steel boiler tubes, 2-in.	19.00
4-in.	39.00

weeks that fabricators as well as other buyers are finding it difficult to obtain material in less than four or five weeks. Prices on all commodities have shown a further gain in strength, and concessions apparently have disappeared. Bars are in moderate demand at 2c., base Pittsburgh. Tank plates are firm at 1.90c., base Pittsburgh, and structural shapes are being sold at 2c., base Pittsburgh. With the disappearance of exceptionally low quotations, the sheet market gradually has been stabilized on a more satisfactory basis. Black sheets now are bringing 3.15c., base Pittsburgh. Producers are holding galvanized at 4.20c., base Pittsburgh, although an attempt is being made to advance the price $2 a ton. Blue annealed sheets are in fair demand at 2.30c., base Pittsburgh, and automobile body sheets are quoted at 4.20c., base Pittsburgh. Bookings of wire goods have been light, but prospects just ahead indicate an improvement in the near future. Common wire nails continue to be sold at $2.65 per keg, Pittsburgh or Ironton, and plain wire at $2.50 per 100 lb., Pittsburgh or Ironton. The number of fresh structural projects is small, but several important awards are anticipated in the next 10 days. Fabricators are operating at a fairly good rate, especially in the South.

Coke.—Domestic by-product coke has advanced 25c. a ton in Michigan. The new price is $7.75, Detroit ovens, for outside delivery. By-product foundry coke will continue to sell at $9.50, Detroit ovens, for outside shipment. There has been a moderate demand for beehive foundry coke. Furnace grades from the Wise County district have stiffened somewhat and are bringing $3.50 to $4, ovens. The Procter & Gamble Co., Cincinnati, recently closed for approximately 6000 tons of furnace coke.

Based on freight rates of $2.14 from Ashland, Ky., $3.53 from Connellsville, and $2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, $7.53 to $8.53; Wise County foundry, $7.09 to $7.59; New River foundry, $9.59 to $10.09; by-product foundry, $9.64.

Old Material.—Although consumers are purchasing only a moderate amount of material, dealers are bullish in their attitude. They are buying up every desirable bit of scrap in the expectation of a distinct betterment in conditions within the next 60 days. Mills are holding down deliveries on contract to their minimum requirements. Foundry grades are sluggish. The Big Four has a list of 5000 tons, including 2250 tons of No. 1 heavy melting steel and 1000 tons of No. 3 rail steel, closing this week.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

	Per Gross Ton
Heavy melting steel	$13.00 to $13.50
Scrap rails for melting	13.00 to 13.50
Short rails	18.00 to 18.50
Relaying rails	27.00 to 27.50
Rails for rolling	14.00 to 14.50
Old car wheels	13.00 to 13.50
No. 1 locomotive tires	17.00 to 17.50
Railroad malleable	15.50 to 16.00
Agricultural malleable	14.50 to 15.00
Loose sheet clippings	7.50 to 8.00
Champion bundled sheets	9.50 to 10.00
Per Net Ton	
Cast iron borings	7.00 to 7.50
Machine shop turnings	6.50 to 7.00
No. 1 machinery cast	17.00 to 18.00
No. 1 railroad cast	14.50 to 15.00
Iron axles	20.00 to 20.50
No. 1 railroad wrought	9.50 to 10.00
Pipes and flues	8.00 to 8.50
No. 1 busheling	9.50 to 10.00
Mixed busheling	7.00 to 7.50
Burnt cast	7.50 to 8.00
Stove plate	9.50 to 10.00
Brake shoes	10.00 to 10.50

Reduces Pig Iron Loading Charge at Providence

The New York, New Haven & Hartford Railroad has made a concession of 35c. a ton in the loading charge on all pig iron passing through the port of Providence, R. I. The reduction is the result of a protest by William H. Muller & Co., Inc., New York, pig iron importers, who rent space at the Providence city dock. It was contended that the carrier was discriminating against Providence, whereas the loading charge at Boston was absorbed in the freight rate.

Production and Sales at High Levels at Youngstown

YOUNGSTOWN, Aug. 3.—President James A. Campbell says that unfilled tonnage of the company is near the year's peak. Gross shipments in July exceeded those for June, but shipments of pig iron were less. "Buying is still heavy and more of it is in sight. Other companies may show an increase in unfilled tonnage, due to July bookings. Four of the company's new tin mills, in the 24-unit plant at Indiana Harbor, Ind., will get under way next Monday. Additional groups will be started as soon as mill crews can be assembled. It is expected the entire plant will be in operation within 60 days.

The piercing mill section of the new seamless tube mill will begin piercing billets by the middle of August. Owing to experimentation, it will be some time later before the rolling mills are placed in commission.

There has been some delay in completing the work of revising differentials in the sheet steel price list, and the revision will not be announced before Sept. 1. New prices will be based on actual production costs of the different gages rolled.

Lapweld pipe capacity of a leading district independent is engaged in full, but there is some idle butt-weld capacity, owing to slackening in standard pipe requirements. Oil country pipe business continues in satisfactory volume.

Steel bars are firm at 2c. per lb. to large customers, with odd-lot business commanding 2.10c.

In this district there is no deviation from the price of $36 for sheet bars, though concessions by a maker in nearby territory are reported.

Sheet and tin plate business from Great Britain, due to the prolonged coal strike, is beginning to filter through, and will become more active, if the strike continues. Premium prices on tin plate for export have been offered district producers, but in most cases the offers have been rejected due to inability to meet delivery requirements. One such offer carried a price of $5.65 per base box, Pittsburgh, which compares with the domestic market of $5.50.

Full finished sheet makers are continuing their efforts to strengthen the market, which is now firm at $4.20 per 100 lb. Some producers in this area say that galvanized sheets at $4.30, with spelter commanding 7½c. per lb., represent a loss.

A district interest reports its basic pig iron price firm at $18, Youngstown, and $21, Chicago.

Production this week suffers to some extent from the hot weather prevalent throughout the Midwest, but makers have announced ambitious schedules. Steel ingot capacity is scheduled at 87 per cent. Such interests as the Trumbull Steel Co. and the Sharon Steel Hoop Co. are operating close to a capacity basis. Of 127 Valley sheet and jobbing mills, 110 are scheduled, against 113 the preceding week. The Carnegie Steel Co. has advanced production at its Ohio Works to above 95 per cent.

Automobile Industry Promises Good August Foundry Operations

DETROIT, Aug. 3.—With the new models of automobiles being released Aug. 1, production schedules have been set for the next two months on a basis equal to any similar period of this year. Melters in the district are well covered on their pig iron requirements for the third quarter. Their shipping schedules for August promise to be higher than those of July.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$13.25 to $13.75
Borings and short turnings	9.00 to 9.50
Long turnings	8.00 to 8.50
No. 1 machinery cast	17.00 to 18.00
Automobile cast	21.50 to 22.50
Hydraulic compressed	11.50 to 12.00
Stove plate	13.50 to 14.50
No. 1 busheling	11.25 to 11.75
Sheet clippings	7.00 to 7.50
Flashings	10.25 to 10.75

FABRICATED STEEL

Awards of Week, 18,000 Tons, Below Average So Far This Year—Inquiries Keep Up

Bookings of fabricated steel work reported to THE IRON AGE this week call for some 18,000 tons, the lowest week's total covering sizable jobs since April. The weekly average so far this year amounts to 29,400 tons. To lists of pending projects were added 21,200 tons, or substantially the average of new work reported weekly in the last three months. Awards include:

NEW YORK, 6857 tons in the following awards reported to the Structural Steel Board of Trade: 15-story loft building, 48-50 West Fifty-seventh Street, 15-story loft building, 16-20 East Fifty-second Street, 21-story office building, 58-60 Broad Street and 18-story loft building, Tenth Avenue and Thirty-third Street, to Levering & Garrigues Co.; Prudential Life Insurance Co. Building, Broad and Academy Streets, Newark, and powerhouse, Far Rockaway, N. Y., to Lehigh Structural Steel Co.; warehouse, 136th Street and Walnut Avenue, theater, 244 West Forty-fourth Street, penthouses and bridge across Thirty-second Street for Gimbel Brothers department store, Thirty-second Street and Sixth Avenue, and Frank Building, Passaic Park, N. J., to Hedden Iron Construction Co.

NEW YORK, 670 tons, apartment building, 112-114 Park Avenue, to Hinkle Steel Construction Co.

NEW YORK, 1500 tons, apartment building, Eighty-third Street and Park Avenue, to Harris Structural Steel Co.

NEW YORK, 200 tons, temporary decking for Cathedral of St. John the Divine, to Hinkle Iron Works.

NEW YORK, 200 tons, transmission poles for Long Island Railroad, to an unnamed fabricator.

NEW BRIGHTON, STATEN ISLAND, 550 tons, sheet rock plant U. S. Gypsum Co., to Jones & Laughlin Steel Corporation.

PHILADELPHIA, 354 tons, trestle and bins, Vansciver Corporation, to Shoemaker Bridge Co

BRADFORD, PA., 100 tons, highway bridge, to Pittsburgh-Des Moines Steel Co.

POTTSVILLE, PA., 600 tons, Community Hotel, to Bethlehem Fabricators.

BALTIMORE, 500 tons, tanks for Pan-American Petroleum Co. to be used in Maryland and Rhode Island, to Chicago Bridge & Iron Works.

CHARLESTON, W. VA., 740 tons, West Virginia State Capitol Office Building No. 2, to Lehigh Structural Steel Co.

WILLIAMSON, W. VA., 500 tons, road work for Norfolk & Western Railway, to Virginia Bridge & Iron Co.

OXFORD, OHIO, 150 tons, grandstand, Miami University, to Pittsburgh-Des Moines Steel Co.

CHICAGO, 250 tons, Wilson Avenue Masonic Temple, to A. Bolter's Sons, Chicago.

ST. LOUIS, 950 tons, building for Maloney Electric Co., to Mississippi Valley Structural Steel Co.

ST. JOSEPH, MO., 200 tons, Missouri Theater, to St. Joseph Structural Steel Co.

LINCOLN, NEB., 100 tons, Christian Church, to St. Joseph Structural Steel Co.

LAWRENCE, KAN., 260 tons, auditorium for State University, to St. Joseph Structural Steel Co.

GIBBONS, NEB., 350 tons, highway bridge, to St. Joseph Structural Steel Co.

VANCOUVER, B. C., 600 tons, docks for Canadian Pacific Railroad, to Dominion Bridge Co.

SEATTLE, WASH., 326 tons, Pacific Telephone & Telegraph Co., building, to Wallace Equipment Co., Seattle.

LA MESA, CAL., 1450 tons, pipe line for the Lemon Grove & Spring Valley Water District, to unnamed Los Angeles fabricator.

MONTEREY, CAL., 100 tons, municipal wharf, to Minneapolis Steel & Machinery Co.

OAKLAND, CAL., 100 tons, for Mokelumne River project, to Pacific Coast Engineering Co., Oakland.

SAN FRANCISCO, 260 tons, apartment building on Geary Street, to Herrick Iron Works, Oakland.

HONOLULU, T. H., 300 tons, pipe line for American Factors, Inc., placed in Chicago.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

PROVIDENCE, R. I., 1150 tons instead of 600 tons previously reported, Hospital Trust Co. annex.

BOSTON, 250 tons, Boston & Maine Railroad, freight terminal.

BROOKLINE, MASS., 600 tons, Temple Israel school.

WEYMOUTH, MASS., 500 tons, Edison Electric Co. plant addition.

NEWARK, N. J., 1500 tons, Lincoln Highway bridge; general contract awarded to Stange Construction Co., Cleveland.

NEW YORK, 500 tons, building for Union Theological Seminary.

MOUNT VERNON, N. Y., 1200 tons, office building for Westchester Light Co.

PHILADELPHIA, 600 tons, Philadelphia General Hospital.

PHILADELPHIA, 3000 tons, Wellington Apartment, bids closed this week.

KINGSTON, PA., 400 tons, building for Glen Alden Coal Co.

HARRISBURG PA., 200 tons, Memorial Bridge.

HAVRE DE GRACE, MD., 6000 tons, construction project for Susquehanna Power Co.

ATLANTIC COAST LINE RAILROAD, 200 tons, five bridges.

CINCINNATI, 1750 tons, Chamber of Commerce Building; bids close Aug. 12.

CINCINNATI, 180 tons, Red Bank crossing of Pennsylvania Railroad; general contract to Hodges Construction Co., Cincinnati.

GIRARD, OHIO, 500 tons, Liberty Avenue viaduct; Stange Construction Co., Cleveland, low bidder.

LAKEWOOD, OHIO, 200 tons, apartment building.

DAVENPORT, IOWA, 1200 tons, Dewey Portland Cement Co.

CHICAGO, 500 tons, first section Illinois Central Randolph Street terminal.

SEATTLE, WASH., 500 tons, West Waterway Bridge.

HOQUIAM, WASH., 350 tons, bridge near Hoquiam.

BREWSTER, WASH., 700 tons, bridge at Brewster; bids Aug. 2.

BEND, ORE., 375 tons, for two steel reservoirs.

BAKERSFIELD, CAL., 350 tons, Security Bank Building.

Chicago Iron and Steel Market

(*Concluded from page* 379)

North Western, 4000 tons by the Santa Fe, and 5000 tons by the Big Four.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

Per Gross Ton	
Heavy melting steel	$14.00 to $14.50
Frogs, switches and guards, cut apart, and miscellaneous rails	16.00 to 16.50
Shoveling steel	14.00 to 14.50
Hydraulic compressed sheets	12.50 to 13.00
Drop forge flashings	9.50 to 10.00
Forged, cast and rolled steel car wheels	18.00 to 18.50
Railroad tires, charging box size	18.50 to 19.00
Railroad leaf springs, cut apart	18.50 to 19.00
Steel couplers and knuckles	17.50 to 18.00
Coil springs	18.50 to 19.00
Low phos. punchings	17.00 to 17.50
Axle turnings, foundry grade	14.50 to 15.00
Axle turnings, blast fur. grade	12.50 to 13.00
Relaying rails, 56 to 60 lb.	25.50 to 26.50
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Rerolling rails	17.00 to 17.50
Steel rails, less than 3 ft.	17.50 to 18.00
Iron rails	14.50 to 15.00
Cast iron borings	11.25 to 11.75
Short shoveling turnings	11.25 to 11.75
Machine shop turnings	7.25 to 7.75
Railroad malleable	17.75 to 18.25
Agricultural malleable	15.50 to 16.00
Angle bars, steel	16.25 to 16.75
Cast iron car wheels	16.00 to 16.50
Per Net Ton	
No. 1 machinery cast	17.00 to 17.50
No. 1 railroad cast	16.25 to 16.75
No. 1 agricultural cast	16.25 to 16.75
Stove plate	14.50 to 15.00
Grate bars	14.25 to 14.75
Brake shoes	13.75 to 14.25
Iron angle and splice bars	14.00 to 14.50
Iron arch bars and transoms	20.00 to 20.50
Iron car axles	24.00 to 24.50
Steel car axles	17.50 to 18.00
No. 1 railroad wrought	13.50 to 14.00
No. 2 railroad wrought	12.50 to 13.00
No. 1 busheling	11.50 to 12.00
No. 2 busheling	7.50 to 8.00
Locomotive tires, smooth	17.00 to 17.50
Pipes and flues	10.00 to 10.50

Razor blades made to fit safety razors are being manufactured from a patent cobalt high-speed steel by Darwin & Milner, Sheffield, England. Long razors, pocket knives, and cutlery are also made from the cobalt high-speed steel, which is offered as not only rustless and stainless but as possessing a cutting edge hitherto unknown.

NON-FERROUS METAL MARKETS

The Week's Prices — Cents per Pound for Early Delivery

	July 28	July 29	July 30	July 31	Aug. 2	Aug. 3
Lake copper, New York	14.37½	14.37½	14.50	14.50	14.50	14.50
Electrolytic copper, N. Y.*	14.12½	14.12½	14.12½	14.20	14.25	14.25
Straits tin, spot, New York	63.50	64.25	64.00	....	64.12½	65.00
Lead, New York	8.90	8.90	9.10	9.15	9.15	9.15
Lead, St. Louis	8.75	8.75	8.85	8.90	8.90	8.90
Zinc, New York	7.82½	7.82½	7.80	7.80	7.77½	7.75
Zinc, St. Louis	7.47½	7.47½	7.45	7.45	7.42½	7.40

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, Aug. 3.—The markets are all strong and steady. Copper has been advancing on fairly substantial buying. The tin market has been moderately active at higher prices. Lead continues to advance and is very strong. The zinc market is quiet and a little easier.

Copper.—Each day has witnessed exceedingly good buying by domestic consumers for deliveries throughout October, but prices have advanced only moderately, which is a feature of the present market. In the past, buying on the scale which has prevailed lately has usually resulted in rapidly advancing prices. At present quotations have expanded only moderately. Most of the buying of the past week has been at levels between 14.37½c. and 14.50c., delivered, some metal changing hands at 14.40c. to 14.45c. Yesterday and today, however, the market easily reached a minimum of 14.50c., delivered. The prospects are that metal for August delivery will become scarcer as the month advances. Sales for export, particularly to Germany, are reported in fair volume, with the price today 14.27½c. to 14.30c., f.a.s. Lake copper is quoted at 14.50c., delivered.

Copper Averages.—The average price for Lake copper for the month of July, based on daily quotations in THE IRON AGE, was 14.22½c., delivered. The average price of electrolytic copper was 13.90½c., refinery, or 14.15½c., delivered.

Tin.—Sales for the week have amounted to about 1400 tons, including those made yesterday and today. For the week ended Friday, July 30, the total sales were about 1000 tons. In most cases dealers were the principal buyers, but on July 29 and 30 consumers showed some interest and bought August, September, October and November delivery. Yesterday, with the London market closed because of the bank holiday, 150 tons changed hands here and today the market was moderately active with spot Straits tin quoted at 65c., New York. Prices in London today were about £5 per ton higher than a week ago, with spot standard quoted at £294 10s., future standard at £288 5s. and spot Straits at £303. The Singapore price today was £292 10s. Spot standard today advanced over yesterday's close nearly £3 per ton, indicating a squeeze on the shorts. Statistics for July show deliveries into consumption of 7630 tons, with 3014 tons in stock and landing on July 31. Estimates by three authorities on the decrease in the visible supplies for the month indicate this to be about 2000 tons, bringing the total close to 13,750 tons.

Lead.—The market is very firm and quite active, with spot and August metal scarce. The feature is the large consumption with production no more than keeping pace with it, so that the market is not a speculative one. On July 30 the leading interest advanced its New York contract price from 8.75c. to 8.90c., at which level it is understood to be doing business only with its regular customers. The outside market is exceedingly strong, with some sales made at 9.25c., New York, which is equivalent to 8.90c., St. Louis. We quote the outside market at 8.90c., St. Louis or 9.15c., New York.

Zinc.—The market is steady and very quiet. Activity on the part of consumers has been light and

Metals from New York Warehouse

Delivered Prices per Lb.

Tin, Straits pig	65.25c. to 65.75c.
Tin, bar	67.75c. to 68.75c.
Copper, Lake	15.50c.
Copper, electrolytic	15.25c.
Copper, casting	14.75c.
Zinc, slab	8.50c. to 9.00c.
Lead, American pig	9.50c. to 10.00c.
Lead, bar	11.50c. to 12.50c.
Antimony, Asiatic	16.00c. to 17.00c.
Aluminum, No. 1 ingot for remelting (guaranteed over 99 per cent pure)	30.00c. to 30.50c.
Babbitt metal, commercial grade	30.00c. to 35.00c.
Solder, ½ and ½ guaranteed	39.75c. to 40.00c.

Metals from Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig	68.25c.
Tin, bar	71.25c.
Copper, Lake	15.00c.
Copper, electrolytic	15.00c.
Copper, casting	14.00c.
Zinc, slab	8.50c.
Lead, American pig	9.00c.
Antimony, Asiatic	16.50c.
Lead, bar	11.25c.
Babbitt metal, medium grade	22.50c.
Babbitt metal, high grade	73.50c.
Solder, 50-50	41.25c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base per Lb.

Sheets—	
High brass	19⅛c. to 20⅛c.
Copper, hot rolled	22¾c. to 23¾c.
Copper, cold rolled, 14 oz. and heavier	25c. to 26c.
Seamless Tubes—	
Brass	24c. to 25c.
Copper	24¾c. to 26¾c.
Brazed Brass Tubes	27⅛c. to 28⅛c.
Brass Rods	16⅞c. to 17⅞c.

From New York Warehouse

Delivered Prices, Base per Lb.

Zinc sheets (No. 9), casks	13.25c.
Zinc sheets, open	13.75c.

Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products are unchanged. Zinc sheets and lead full sheets are still being quoted at the advances of July 20 and July 26 respectively.

List Prices Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets—	
High brass	19.12½c.
Copper, hot rolled	22.75c.
Zinc	11.75c.
Lead (full sheets)	12.50c. to 12.75c.
Seamless Tubes—	
High brass	24.00c.
Copper	24.75c.
Rods—	
High brass	16.87½c.
Naval brass	19.62½c.
Wire—	
Copper	16.12½c.
High brass	19.62½c.
Copper in Rolls	21.62½c.
Brazed Brass Tubing	27.12½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide	37.50c.
Tubes, base	48.00c.
Machine rods	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

Sheets—	*Base per Lb.*
High brass	19½c. to 20¼c.
Copper, hot rolled	22¾c.
Copper, cold rolled, 14 oz. and heavier	25c.
Zinc	12.25c.
Lead, wide	11.25c.
Seamless Tubes—	
Brass	24c.
Copper	24¾c.
Brazed Brass Tubes	27½c.
Brass Rods	16¾c.

Old Metals, Per Pound, New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	12.25c.	13.50c.
Copper, heavy and wire	11.75c.	12.50c.
Copper, light and bottoms	10.00c.	11.25c.
Brass, heavy	7.25c.	9.00c.
Brass, light	6.25c.	8.00c.
Heavy machine composition	8.75c.	10.00c.
No. 1 yellow brass turnings	8.50c.	9.25c.
No. 1 red brass or composition turnings	8.00c.	9.00c.
Lead, heavy	7.75c.	8.00c.
Lead, tea	5.75c.	6.50c.
Zinc	4.25c.	4.75c.
Sheet aluminum	17.00c.	19.00c.
Cast aluminum	17.00c.	19.00c.

prices have eased off a little. Prime Western zinc today is quoted at 7.40c., St. Louis, or 7.75c., New York.

Nickel.—Wholesale lots of ingot nickel are quoted at 35c., with shot nickel at 36c. per lb. Electrolytic nickel is quoted at 39c.

Antimony.—With conditions in China no worse than those reported a week ago, Chinese metal is practically unchanged at 16c., New York, duty paid, for spot delivery and 15.50c. for futures.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is obtainable at 27c. to 28c. per lb., delivered.

CHICAGO, Aug. 3.—The demand for non-ferrous metals is steady and in good volume. The prices of all excepting zinc have advanced. The old metal market is active and copper, brass and lead grades have advanced. We quote, in carload lots, Lake copper, 14.75c.; tin, 64.50c.; lead, 9c.; zinc, 7.65c.; in less than carload lots, antimony, 17.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.75c.; copper bottoms, 9.75c.; red brass, 9.25c.; yellow brass, 8c.; lead pipe, 7.50c.; zinc, 5c.; pewter, No. 1, 35c.; tin foil, 43.50c.; block tin, 52c.; aluminum, 17.75c., all being dealers' prices for less than carload lots.

Slight Decline in Canadian Pig Iron Output in June—Steel Output Lower

TORONTO, ONT., July 31.—The production of pig iron in Canada for the month of June amounted to 70,854 gross tons, a decline of 3 per cent from the 72,762 tons reported for May. The output for the month under review was composed of 52,614 tons of basic, 10,087 tons of foundry and 8153 tons of malleable iron. For the first half of 1926 the cumulative production of pig iron totaled 370,864 gross tons, as compared with 290,892 tons for the corresponding six months of last year. This year's output was made up of 257,459 tons of basic iron, 93,323 tons of foundry iron and 20,082 tons of malleable iron. Most of the basic iron was made for the further use of producing firms, while the bulk of malleable and foundry iron was for sale. Of the total produced 32 per cent was made for sale, as compared with 13 per cent last year. At the end of June there were six furnaces in blast, located as follows: British Empire Steel Corporation, Sydney, N. S., two; Steel Co. of Canada, Ltd., Hamilton, Ont., two; Algoma Steel Corporation, Sault Ste. Marie, Ont., two. The active furnaces had a capacity of 2375 tons per day, which represented about 47 per cent of the total capacity of all blast furnaces in the Dominion.

The production of 81,277 tons of steel ingots and castings in Canada during the month of June was 9 per cent under the 89,513 tons reported for May, but 29 per cent over the 63,140 tons produced in June, 1925. For the month under review the production consisted of 77,684 tons of steel ingots and 3593 tons of castings. For the six months ended with June the cumulative production of ingots and castings amounted to 431,184 tons, as compared with 423,697 tons in the first six months of last year and 488,733 tons produced in the first half of 1924.

Trumbull Steel Reports Good Business

YOUNGSTOWN, Aug. 3.—President John T. Harrington advises that unfilled tonnage of the Trumbull Steel Co., Warren, is between 120,000 and 125,000 tons, the highest point of the year. July shipments were 39,000 tons, slightly less than June. Specifications for sheets and tin plate are sufficient for four weeks' operations at a capacity rate.

Process for the Production of Alumina Cement and Ferrosilicon

A new process patented by Edwin C. Eckel, Washington, D. C., on July 6 offers means of making the new high-strength and quick-hardening cements, the use of which is rapidly extending in both the United States and Europe, at a cost which the inventor puts at about $3 a ton. Savings are effected chiefly by the means devised for economically controlling the silica in the raw charge.

In carrying out the process, a mixture of iron ore, limestone and bauxite—or iron ore, limestone and high alumina clays—is fused in a blast furnace or electric furnace. Sufficient carbon is added, in the form of coke or charcoal, not merely to supply the heat necessary for smelting but to reduce the iron oxide and such portion of the silica as may be desired. The two reduced metals unite in the melting zone to form ferrosilicon, the value of which greatly reduces the cost of the alumina cement itself, which is made from the slag.

Jones & Laughlin Steel Corporation Increases Common Stock Dividends

The Jones & Laughlin Steel Corporation, Pittsburgh, has increased the dividend on its common stock from 4 to 5 per cent annually by the declaration of a quarterly dividend of 1¼ per cent payable Sept. 1, to stockholders of record Aug. 16. The regular quarterly preferred dividend of 1¾ per cent has been declared, payable Oct. 1, to stockholders of record Sept. 15. Net earnings of the company and subsidiaries for the six months ended June 30 were $10,425,468. Deductions of $2,491,132 for depreciation and depletion, interest on bonds and other obligations of $432,567 and dividends of $3,140,475, left a surplus of $4,361,294. Earnings statements of the company hereafter will be issued quarterly.

American shipyards on July 1 were building or under contract to build for private shipowners 181 steel vessels of 183,770 gross tons compared with 159 steel vessels of 209,940 gross tons on June 1, according to the Bureau of Navigation, Department of Commerce.

PERSONAL

A. W. Henn resigned as president of the National Acme Co., Cleveland, at a meeting of the board of directors July 28 and was made chairman of the board. At the same time he retired as treasurer of the company. He was succeeded as president by Fred H. Chapin, formerly vice-president in charge of operations of the Bourne-Fuller Co., Cleveland, who resigned from that company several months ago. During the six years that he was with the Bourne-Fuller Co., he was in charge of operations of its Upson steel plant and bolt nut works. Previous to his affiliation with the Bourne-Fuller Co. in 1919, Mr. Chapin was associated with the Hydraulic-Press Brick Co., St. Louis, in Minneapolis, St. Louis and Cleveland. During the last ten years he spent with that company with headquarters in Cleveland, he was in charge of its Eastern district manufacturing plants and sales.

FRED H. CHAPIN

G. J. Steinbicker, formerly comptroller of the National Acme Co., has succeeded Mr. Henn as treasurer and K. N. Crumrine, who was formerly connected with the company's plant at Windsor, Vt., has been made superintendent of the Coit plant, Cleveland.

Mr. Henn's retirement from the presidency of the National Acme Co. was prompted by his desire to shift some of the responsibilities to other shoulders. With his brother, the late E. C. Henn, he started in business in Hartford, Conn., in 1897, operating a small plant under the name of the Acme Machine Screw Co. Negotiations started in 1901 resulted in the merger of the plant with the National Mfg. Co. of Cleveland. The consolidation was effected under the name of the National Acme Mfg. Co., which was later changed to the National Acme Co. The company manufactures automatic screw machines and screw machine products.

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Walter F. Ingals, recently elected to the presidency of the Central Tube Co., Pittsburgh, as announced July 22 in THE IRON AGE, has been with that company since its organization in 1909, and has been engaged in the pipe business since 1898. He started with the Western Tube Co., Kewanee, Ill., in its sales department and when the company was purchased by the National Tube Co. in 1907, he was retained by the latter concern, going to Pittsburgh in its general sales department. He severed that connection in July, 1909, to become general manager of sales of the Central Tube Co., of which he was elected vice-president in 1920. This company, which started with one buttweld pipe furnace and for a number of years specialized in the smaller sizes of pipe, now has four butt-weld and one lapweld furnaces.

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Robert L. Ireland, Jr., will succeed Michael Gallagher, who resigned recently, as head of the bituminous coal mining department of the M. A. Hanna Co., Cleveland. Mr. Ireland was formerly assistant manager of the department.

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H. S. Beale has been appointed sales engineer in the New York territory of the Harnischfeger Corporation, with offices at 50 Church Street, New York. H. A. Wolcott, formerly in charge of the company's Miami office, has been made district manager of the New York territory with headquarters at the same address. S. B. Bubier has been made sales engineer in the Miami district, with offices at 343 Southwest River Drive, Room 306, Miami, Fla.

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R. J. Tiedeken has been made raw material salesman in the Philadelphia territory of the Bridgeport Brass Co., Bridgeport, Conn., with headquarters in the Bankers Trust Building, Philadelphia. Mr. Tiedeken entered the brass and copper business in 1903 with the A. P. Swoyer Co., and has also been connected with the U. T. Hungerford Co. and the Carey-McFall Co.

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William J. Adamson, formerly with the sales department of Trumbull Steel Co., Warren, Ohio, has been placed in charge of sales of hot and cold rolled strip steel for the Acme Steel Co., 112 West Adams Street, Chicago.

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Dr. W. D. Coolidge, assistant director of the research laboratory of the General Electric Co. and inventor of an X-ray tube which bears his name, has been awarded the Howard N. Potts gold medal for 1926 by the Franklin Institute of Philadelphia. The medal will be formally presented by the institute on Oct. 20.

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Crispin Oglebay, Oglebay, Norton & Co., Cleveland, a nephew of the late Earl W. Oglebay, has been elected a director of the Wheeling Steel Corporation, to fill the vacancy caused by the death of his uncle.

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Laurence Thompson has been appointed district manager for the United States Electrical Tool Co., with headquarters at 555 Erie Building, Cleveland. He was formerly Cleveland manager of Fairbanks-Morse Co. William J. McFarland, for a number of years associated with Boyer-Campbell Co., Detroit, has been placed in charge of the new Detroit offices of the United States Electrical Tool Co. at 2-226 General Motors Building.

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L. W. Barger is now works engineer for both the Symington Co., Rochester, N. Y., and the Gould Coupler Co., Depew, N. Y.

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F. A. Whitten has been appointed engineer in charge of design and development for American Car & Foundry Motors Co., Detroit. Until his resignation some time ago he had been chief engineer for General Motors Truck Co., Detroit, having served in that capacity for 13 years.

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Clarence H. Zarse, formerly of the general sales staff of the Heil Co., Milwaukee, manufacturer of tanks, bodies and hoists, has been placed in charge of the company's New England factory branch office and service station which has been opened at 298 North Harvard Street, Boston.

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Herbert S. Freeman has been made district representative of the Fibroc Insulation Co., Valparaiso, Ind. He will represent the company in the northern New York territory with headquarters at Rochester.

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Ferdinand W. Roebling, Jr., has been elected president of the John A. Roebling's Sons Co. to succeed his father, the late W. A. Roebling. Mr. Roebling has been first vice-president and treasurer of the company for many years, and will be succeeded in that position by William A. Anderson.

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Joseph G. Stadelman has been appointed first vice-president and general manager of Harris Brothers Co., machinery dealers, Chicago.

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Howard A. Winton, formerly advertising manager of the Heil Co., Milwaukee, has been placed in charge of the promotion and activities of the company's branches and distributers in the capacity of general branch manager. Arthur Nicolaus has been named advertising manager.

E. H. Haslam has resigned from the Hadfield-Penfield Steel Co., Bucyrus, Ohio, of which he has been president for three years. He has also resigned as president of the Era Steel Co., an affiliated company. The operations of these companies are now in charge of W. A. Riddell, vice-president. Mr. Riddell is president of the Frederick Iron & Steel Co. and the Frederick Engineering Co., Frederick, Md. He will retain his interest in and continue his activities with the Frederick companies.

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Charles F. Brush, Cleveland pioneer in electric lighting and inventor of the arc light, started the operation of the new power plant of the Cleveland Electric Illuminating Co., Avon, Ohio, Aug. 4. Many invited guests were present. The plant is one of the latest developments in electrical generation on a large scale. The initial unit has a capacity of 90,000 hp.

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M. Rothschild, formerly vice-president and general manager for Harris Brothers Co., Chicago, dealers in building material, machinery and fabricators of structural steel, has recently been elected chairman of the board of the Republic Motor Truck Co., Inc., with factory at Alma, Mich.

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Clarence F. Bennett, president the Stanley Works, New Britain, Conn., has been made a director of North & Judd Mfg. Co., New Britain, Conn., maker of hardware, harness and accessories.

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Wheeler Lord has been elected president of the Nicetown Plate Washer Co., Inc., Nicetown, Philadelphia. He founded the company in 1900 and left in 1917 to enter the Ordnance Department, United States Army, with the rank of major. The Nicetown Plate Washer Co., Inc., manufactures iron and steel bars, deformed bars, threaded rods with nuts, punched bars or plates, awning rods, step iron, cast iron washers, galvanized bars and washers.

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T. Holland Nelson, former vice-president of William T. Bate & Son, Inc., Conshohocken, Pa., and who developed with this company a considerable business in nickel-chrome and chrome alloy castings, as manufactured under the patents of the Ludlum Steel Co., has taken over this portion of the business, formerly owned by William T. Bate & Son, Inc., under the name, T. H. Nelson & Co.

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G. A. Singer, formerly in charge of the Cleveland office, Sharon Steel Hoop Co., Sharon, Pa., has been appointed Cleveland district sales manager of the Columbia Steel Co., Pittsburgh, which has opened an office at 1056-A Hanna Building, Cleveland.

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M. A. Beeman, secretary Concrete Reinforcing Steel Institute, has returned to Chicago from a trip to the Pacific Coast, where he assisted R. W. Chrouch, newly appointed secretary of the California Reinforcing Steel Institute, in opening offices in San Francisco and Los Angeles and in organization work.

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Richard P. Johnson will have charge of the new factory office, recently established by Kuhlman Electric Co., Bay City, Mich., manufacturer of distribution and street lighting transformers, at 3-260 General Motors Building, Detroit.

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Louis D. Moore, 1201 Syndicate Trust Building, St. Louis, has been appointed district sales agent for the St. Louis territory of the Burke Electric Co., Erie, Pa., manufacturer of electrical equipment.

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V. V. Casey has been added to the sales force of Bonney Forge & Tool Works, Allentown, Pa., and will represent the company in Pennsylvania, southern New York, Maryland, New Jersey and District of Columbia.

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P. W. Milligan has joined the sales force of Hickman, Williams & Co., pig iron brokers, at New York.

J. Frederic Wiese, formerly secretary Parkesburg Iron Co., has been made assistant to the general manager of sales of the Lukens Steel Co., Coatesville, Pa.

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Arthur H. Dufort, for 14 years identified with the Wheeling Steel Corporation, and since Jan. 1 St. Louis district sales manager, has resigned that position to become assistant manager of sales Central Tube Co., Pittsburgh. Mr. Dufort's successor at St. Louis is Henry E. Smith, formerly Atlanta district sales manager, who in turn has been succeeded by his brother, R. Frank Smith, who has been associated with him in the Atlanta office.

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Daniel H. Harrington, Salt Lake City, Utah, has been appointed chief engineer of the safety service division of the Bureau of Mines, Department of Commerce. Mr. Harrington served as a mining engineer of the bureau from 1910 until 1924, and in the course of that period made a special study of health problems of workers in metal mines.

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Thomas D. McCloskey has been elected chairman of the board of the Firth-Sterling Steel Co.. He is the senior member of the law firm of Kinnear, McCloskey & Best.

Noted German to Deliver Campbell Memorial Lecture Before Steel Treaters

The first Edward DeMille Campbell memorial lecture established by the American Society for Steel Treating in memory of its late honorary member, E. D. Campbell, of the University of Michigan, will be presented during the annual convention of the A. S. S. T. and national steel and machine tool exposition to be held in Chicago the week of Sept. 20.

DR. W. M. GUERTLER

The annual meeting will be held on Wednesday morning, Sept. 22, at the Drake Hotel, and will be followed immediately by the presentation of the memorial lecture by Dr. William Minot Guertler, director Metall-Institut of Technischen Hochschule, Berlin, Germany. Dr. Guertler is president of the metallurgical society of Germany, and has contributed prolifically to the metallurgical literature of that country. In 1909 Dr. Guertler was research associate and lecturer at the Massachusetts Institute of Technology, Cambridge.

At present, America and Europe are especially interested in three newly developed inventions of Doctor Guertler and his cooperators: 1, a new aluminum alloy of high strength, 2, a new kind of silver alloy having mechanical properties of steel, and 3, a new and simple process of gaining Muntz metal directly from mixed ores.

Doctor Guertler's memorial lecture will be on "The Corrosion Resistance of Steel." He will also present a lecture on "The Hardness of Metals" on Thursday, Sept. 23, and on Friday, Sept. 24, he will discuss "Light Metal Alloys." Doctor Guertler will remain in this country for two months after the close of the A. S. S. T. convention.

The Otis Steel Co., Cleveland, made what possibly is a record in rapid relining of its No. 1 blast furnace. This furnace was blown out on June 19 and blown in again on July 28, during which time it was completely relined.

OBITUARY

ERNST REITLER is well remembered in this country by all who attended the memorable meeting of the International Association for Testing Materials held in New York in the fall of 1912. Word has come in the past week of his death on June 17 after a long illness. He was in his sixty-fifth year. For more than a dozen years he was secretary of the testing association. He had been a civil engineer in Vienna and an official of the Austrian State Railways. When the first president of the International Association for Testing Materials, Professor Tetmajer, moved in 1901 from Zurich to Vienna, the headquarters of the association were established in the latter city and remained there. At the invitation of the Russian delegates it was decided at New York in 1912 to hold the meeting of 1915 in St. Petersburg, but due to the world war the New York meeting was the last in the history of the association. Mr. Reitler did his best to revive the organization after the war but France and Belgium were not favorable and thus the United States and England were prevented from helping. In addition to his other accomplishments, Mr. Reitler was an architectural engineer and on a number of occasions took pride in showing American visitors in Vienna the remarkable development of the baroque style of art in architecture. He made his first trip to the United States in 1893 to study railroad organization and operation, and published a number of pamphlets on American and British railroads covering stations, yards, permanent way, safety appliances and traffic administration. He was a Knight of the Order of Danebrog.

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GEORGE HAMILTON BOYD, chairman of the board of directors Valley Mold & Iron Corporation, Sharpsville, Pa., died July 25 at his summer home at Spring Lake, N. J. He was born at Elyria, Ohio, in 1858, removing to Cleveland when a young man where he entered the iron and steel industry. After the plant of the Thomas D. West Foundry Co. in which he was employed was destroyed by fire in 1892, Mr. Boyd took up his residence in Sharpsville, where he became the controlling owner of the company. The name was later changed to the Valley Mold & Iron Corporation, and Mr. Boyd had been chairman of its board since 1918. He was widely known in western Pennsylvania as a philanthropist.

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WILLIAM HOWARD TIMS, general manager Abbott Ball Co., Hartford, Conn., died July 17. He had been superintendent of the company's plant for a number of years and general manager since Jan. 1, 1926.

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THEODORE P. KIMMAN, works manager of the Cleveland plant of the Chicago Pneumatic Tool Co., died July 24 at the age of 58 years. He was superintendent of the plant from 1903 to 1921, when he succeeded his brother, H. J. Kimman, as works manager. He is credited with having been the designer of the first 4-piston air drill.

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DR. EDGAR KIDWELL, formerly of the Kidwell Boiler Co., Milwaukee, and author of numerous books and pamphlets on boilers, died July 7 at his home in Berkeley, Cal. Upon receiving his doctor's degree from Georgetown University in 1897 he served as a professor in a number of colleges, finally becoming mechanical engineer for the Kidwell company, which position he held until two years ago.

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ABRAM WARREN WHEATON, founder of the A. W. Wheaton Brass Works, Newark, N. J., died July 22 at his home in that city. He was 74 years old and widely known as an inventor.

Scrap Buying Diminishes in Canada

TORONTO, ONT., Aug. 2.—While there is still a steady demand for small tonnages of iron and steel scrap in the Canadian market, business as a whole shows a falling off when compared with that of a couple of weeks ago. Melters who are short of supplies are entering the market with orders to carry them along for two or three weeks, but in most cases buying is confined to hand-to-mouth transactions. Shipments of heavy melting steel and turnings into the Hamilton district are a strong feature of the market, and some demand is reported for machinery cast, but most other lines are moving sluggishly. In the Montreal market dealers report a fairly active demand. Local consumers are coming forward with orders for immediate needs which, with the demand prevailing on export account, give good life to the market. Dealers show little interest in adding to their yard holdings. Scrap prices in both the Toronto and Montreal districts are steady, with dealers' buying prices as follows:

	Toronto	Montreal
Per Gross Ton		
Steel turnings	$9.50	$6.00
Machine shop turnings	9.50	6.00
Wrought pipe	7.00	6.00
Rails	11.00	8.50
No. 1 wrought scrap	11.00	13.00
Heavy melting steel	11.00	7.50
Steel axles	16.00	17.00
Axles, wrought iron	18.00	19.00
Per Net Ton		
Standard car wheels	16.00	16.00
Malleable scrap	12.00	12.00
Stove plate	12.00	13.00
No. 1 machinery cast	16.00	18.00

Bourne-Fuller Co. to Erect 10-in. Bar Mill

The Bourne-Fuller Co., Cleveland, will erect a 10-in. bar mill at its Union mills to replace the present 8 and 9-in. mills, which will be dismantled. The new mill will produce bars in ¼ to ¾-in. sizes or in the same range of sizes as are now made on both the smaller mills. The contract for the mill has been placed with the United Engineering & Foundry Co., Pittsburgh.

The Bourne-Fuller Co. will also add considerable electrical equipment to its Upson steel works and blast furnace plant to make them more completely electrically operated. A 4000-hp. reversing motor and a 3600-kw. motor-generator set will be installed for driving the 34-in. blooming mill. A turboblower with capacity of 33,000 cu. ft. per min. will replace the steam blowing engines used at the blast furnace. A 4000-kw. turbo-generator will be installed to increase the power plant capacity. Contracts for the electrical equipment, turboblower and also a switchboard for the motor-generator set have been placed with the General Electric Co.

The Industrial Machinery Division, Department of Commerce, Washington, has issued a bulletin on "Developing Machinery Markets Abroad." The publication goes into detail in explaining to American machinery manufacturers methods for setting up export organizations, the manner of creating personnels, policies of credits and other information which is vital to establishing and maintaining foreign trade.

Another 40 x 60-in. twin-tandem blast-furnace gas engine for installation at its South works has been bought by the Illinois Steel Co. from the Allis-Chalmers Mfg. Co. This makes a total of six units of this size for that plant.

The Lebanon Iron Co., Lebanon, Pa., has appointed E. D. Giberson & Co., 40 Rector Street, New York, selling agents for New York, New Jersey, New England and the Pittsburgh district. This is an extension of territory, E. D. Giberson & Co. having been representatives in the New York district for the past 13 years.

Increased Activity in European Steel

Continent Fattens on British Strike—German Steel Quotas Higher for August

(*By Cablegram*)

LONDON, ENGLAND, Aug. 3.

WHILE the market was idle over the holidays, all prices are firm. Cleveland stocks of pig iron are very low. Finished steel production is increasing, with the use of foreign coal. Makers are moderately well placed and are not keen sellers for forward delivery.

July shipbuilding output of the Clyde consisted of 12 vessels launched, aggregating 12,897 gross register tons.

Tin plate is easier, due to the re-starting of additional mills. Current output is about 20 per cent of normal. Galvanized sheets are rather more active, on account of increasing production, and most makers are quoting October as the earliest shipment date. Black sheets are idle.

Continental markets are strong, on account of good demand from British consumers and rumors of the imminent formation of an international steel cartel which will exclude British makers. The German Raw Steel Association has increased its authorized rate of output for August by 2½ per cent, to 70 per cent.

British Strike Paralyzes Steel Industry, Despite Foreign Coal

LONDON, ENGLAND, July 22.—There has been very little change in the iron and steel situation during the past two weeks. The coal strike continues, nearly at the end of its eleventh week, and the production of iron and steel is being carried on with the utmost difficulty. Before the strike there were about 150 furnaces in blast throughout the country; by the end of May there were 23 and by the end of June, 11. At present there are possibly four furnaces in blast. The shortage of pig iron is acute and users obtain stocks only with difficulty. For spot shipment, Cleveland producers are asking £4 7s. 6d., which represents an advance of about 7s. 6d. a ton since the beginning of the strike. Unless a settlement is reached soon, the entire trade will be at a standstill. Foreign fuel has been imported in fair tonnages, but apparently little or none has been used for blast furnace operation. Some of the light steel mills are operating part time with the aid of Continental and American coal and Continental semi-finished material. These mills are booking some orders for shipment within a few weeks after the resumption of coal mining, but as this is rather indefinite the volume of tonnage placed is restricted. Nevertheless there has been a brisk demand for Continental semi-finished steel, and despite reports that makers are heavily engaged for several weeks, some considerable orders have been placed. In general the lighter industries are not so handicapped as the heavy branches, and with order books well filled prior to the strike, these mills are making preparations for resumption at the earliest possible moment. The heavy steel trades, on the other hand, have for some time been engaged in severe competition, so that most of the heavy plants are still idle. The whole situation is fraught with uncertainty. No one knows when the coal strike is likely to terminate, and so producers cannot tell when they are likely to be in a position to resume shipments or what estimate to make of future costs, which it seems to be expected will be increased.

EXPANSION IN GERMANY

Steel Output for August Increased and Wire and Tube Prices Higher

(*By Radio*)

BERLIN, GERMANY, Aug. 3.—The market is much more active and the tone is optimistic. Pig iron and steel prices and selling conditions for August are unchanged. The Steel Syndicate increased production ration of its members to 70 per cent of full capacity. July's production ration was 67½ per cent following 65 per cent for some months preceding. For this new quota works have already sufficient orders.

Prices of tubes have been increased as a result of

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £ as follows:

Durham coke, del'd	£0	18½s.				$4.50			
Bilbao Rubio ore†	1	1	to £1	1¼s.		5.10	to	$5.16	
Cleveland No. 1 fdy.	4	12½	and 4	13*		22.48	and	22.60*	
Cleveland No. 3 fdy.	4	10	and 4	10½*		21.87	and	22.00*	
Cleveland No. 4 fdy.	4	9	and 4	9½*		21.63	and	21.75*	
Cleveland No. 4 forge	4	8½	and 4	9*		21.50	and	21.63*	
Cleveland basic (nom.)	3	15	and 3	15½*		18.23	and	18.35*	
East Coast mixed	4	1	and 4	2*		19.68	and	19.93*	
East Coast hematite	3	16	to 3	16½		18.46	to	18.58	
Ferromanganese	15	0				72.90			
*Ferromanganese	14	0				68.04			
Rails, 60 lb. and up	6	15	to 7	5		32.80	to	35.24	
Billets	6	10	to 8	0		31.59	to	38.88	
Sheet and tin plate bars, Welsh	6	5				30.38			
Tin plates, base box	1	0	to 1	5		4.86	to	6.08	
Black sheets, Japanese specifications	13	10	to 14	0		65.60	to	68.04	
						C. per Lb.			
Ship plates	7	5	to 7	15		1.57	to	1.68	
Boiler plates	9	5	to 11	0		2.00	to	2.29	
Tees	7	10	to 8	0		1.62	to	1.72	
Channels	6	15	to 7	5		1.46	to	1.57	
Beams	6	10	to 7	0		1.41	to	1.51	
Round bars, ¾ to 3 in.	7	12½	to 8	2½		1.65	to	1.77	
Steel hoops	10	10	and 11	0*		2.28	and	2.39*	
Black sheets, 24 gage	11	0	to 11	5		2.39	to	2.44	
Galv. sheets, 24 gage	16	10				3.58			
Cold rolled steel strip, 20 gage	15	0				3.91			

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports

Foundry pig iron: (a)								
Belgium	£3	6s.	to £3	7s.	$16.03	to	$16.28	
France	3	6	to 3	7	16.03	to	16.28	
Luxemburg	3	6	to 3	7	16.03	to	16.28	
Basic pig iron: (a)								
Belgium	2	16	to 2	17	13.60	to	13.85	
France	2	16	to 2	17	13.60	to	13.85	
Luxemburg	2	16	to 2	17	13.60	to	13.85	
Coke	0	18			4.37			
Billets:								
Belgium	4	7	to 4	9	21.14	to	21.63	
France	4	7	to 4	9	21.14	to	21.63	
Merchant bars:					C. per Lb.			
Belgium	4	15	to 4	17½	1.04	to	1.06	
Luxemburg	4	15	to 4	17½	1.04	to	1.06	
France	4	15	to 4	17½	1.04	to	1.06	
Joists (beams):								
Belgium	4	14	to 4	15	1.03	to	1.04	
Luxemburg	4	14	to 4	15	1.03	to	1.04	
France	4	14	to 4	15	1.03	to	1.04	
Angles:								
Belgium	5	3	to 5	4	1.12	to	1.15	
⅜-in. plates:								
Belgium	5	10	to 5	12½	1.21	to	1.23	
Germany	5	10	to 5	12½	1.21	to	1.23	
⅜-in. ship plates:								
Belgium	5	3	to 5	5	1.13	to	1.15	
Luxemburg	5	3	to 5	5	1.13	to	1.15	
Sheets, heavy:								
Belgium	6	3	to 6	4	1.35	to	1.37	
Germany	6	3	to 6	4	1.35	to	1.37	

(a) Nominal.

the formation of the International Tubes Syndicate.

Wire export prices also are rising.

Pig iron output in June declined but production of steel and rolled goods increased.

June exports of semi-finished steel, structural forms, wire and railroad materials show big increases. Export orders for July also increased.

Speedy formation of an international syndicate is considered improbable.

BELGIAN MARKET INACTIVE

Export Quotations Are Still Soft—Pig Iron Is Active

ANTWERP, BELGIUM, July 15.—Continued fluctuation of the exchange is an obstacle to business. Makers find it exceedingly difficult to quote firm prices and buyers hesitate to place orders with the prospect of still lower prices always in view. The recent recovery of the exchange brought about a slight return of confidence but not on a scale sufficient to bring about any important buying, so that quotations on most products are still very unstable. However, despite the small volume of orders which the mills are booking, considerable resistance to the price demands of buyers is being shown, largely because of increased wages and the higher cost of many raw materials.

Luxemburg mills are still in many cases underquoting Belgian sellers, but are evidently not inclined to make the concessions obtainable a few weeks ago. German competition is keen, but although there are reports that German makers will undersell Belgian mills, when foreign buyers offer definite specifications, German prices are apparently at the world market level.

Pig Iron.—Export demand continues heavy with the quoted price of about £3 6s. f.o.b. Antwerp for No. 3 phosphoric foundry quite firm. Demand from British consumers is still heavy and the domestic market is firm with most furnaces sold up to the end of August.

Semi-Finished Material.—British mills continue active purchasers of billets and sheet bars and demand from domestic consumers continues unabated even at higher prices. For export, billets are quoted at £4 7s. 6d. ($21.45), blooms at £4 ($19.50) and slabs at £4 14s. ($23.05).

Finished Material.—While there has been a certain return of confidence as a result of the recent recovery of the franc the volume of business actually transacted is still small, mills showing slightly more firmness and buyers still seeking concessions from the original quotations. The tendency of Luxemburg mills to offer concessions on desirable business is apparently disappearing. Export prices are inclined to softness with as low as £4 12s. 6d. ($22.70), f.o.b. Antwerp reported to have been done on bars. Beams are quoted at £4 14s. ($23.05), corrugated bars at £5 4s. ($25.50), wire rods at £5 5s. ($25.75), and steel hoops at £6 ($29.40), all f.o.b. Antwerp. As a result of the violent fluctuation of the exchange it is practically impossible to establish the domestic market on these products.

German Mills Competing for Export Orders on Corrugated Galvanized Sheets

HAMBURG, GERMANY, July 16.—Efforts have been made recently by Belgian and later German mills to enter into competition with the British on corrugated galvanized sheets. As a result of the depreciated franc several Belgian mills were successful in booking a few orders at £15 15s. per ton, f.o.b. Antwerp, for sheets with three 8-in. corrugations, 24 to 26 in. long. It is reported that the appearance of the galvanizing was not entirely satisfactory to some customers.

In the past month German mills in the United Steel Works have made efforts to increase their business in such sheets, refraining, however, from competing in the lighter gages, such as Nos. 24, 26 and 28 gage. These works have specialized in Nos. 16 to 22 gage with eight 3-in. and ten 3-in. corrugations. Increases in the capacity of these mills are being made and larger quantities are expected to be offered for export before long. Prices are apparently equivalent to the British quotations.

JAPAN INQUIRES FOR TIN PLATE

Usual Requirements for Nippon Oil—Rails for Tokio Subway—Chinese Inquiry Light

NEW YORK, Aug. 3.—While the Japanese market continues moderately active, Chinese business is confined to occasional purchases of small lots of tin plate. Inquiries from China for wire shorts, second-hand plates and similar material, seldom develop into orders, the Chinese merchants being unwilling to meet the current quotations and often refraining from even a counter offer of a lower price. Second-hand plates are still quoted at $27 to $28 per ton, c.i.f. Shanghai, and wire shorts at $43 to $44 per ton, with the possibility of lower prices on actual business. The boycott of British products at Canton seems to continue unabated.

From Japan there is an inquiry from the Nippon Oil Co. for 29,750 boxes of tin plate for November-December-January delivery, bids on which open Aug. 4, and a rail inquiry for the Tokio subways calls for 9.7 miles of 100-lb. rails and 3 miles of 90-lb. high T-rails (1950 tons all told). Recent purchases of tin plate for Japan have been small lots of various sizes, evidently for stock replacement. One exporter has closed about 1500 base boxes in the past week, made up of numerous small lots.

Importers of European steel for consumers in the United States report continued activity in the sale of small tonnages with occasional purchases of lots ranging up to 500 tons or more. One importer in this district recently closed about 500 tons of reinforcing bars and there have been several sales of small lots of hoops and bands. Prices of the Continental product continue low with German sellers meeting the world market prices established by French and Belgian mills, which are quoting in the pound sterling, but with a depreciated domestic currency.

FRENCH EXPORT PRICES WEAK

German Mills Meet Each Decline of Franc—Buyers Prefer Steel to Francs

PARIS, FRANCE, July 16.—Consumers, rather than producers of iron and steel, seem disposed to transact business, apparently desirous of increasing their stocks of material rather than to count their assets in unstable paper francs. Sellers, however, are unwilling in most instances to consider contracts except on a basis of price prevailing at time of delivery. In the meantime, the political situation continues uncertain but the temporary comparative stability of the franc seems to be leading to a little confidence that the present administration's fiscal reforms and increased taxation may lead to a readjustment of the financial situation.

The export situation is practically unchanged, fluctuation of the currency still producing confusion and a weakness of prices, which German sellers, backed with an export rebate of 8 gold marks or about 75 fr. per ton, are able to meet and occasionally undersell.

Pig Iron.—Demand for phosphoric foundry grades is again increasing with foundry consumers stocking heavily, which contributed to the disposal of the additional 10,000 tons made available for the domestic market in July at 520 fr. per ton instead of 460 fr., the quotation on the regular quota for the month. The only furnace producing medium phosphorus foundry was authorized by the association to sell at 560 fr. per ton, f.o.b. furnace for July. With the instability of the market and the known advance in coke prices in mind, hematite producers have increased prices for August by 60 fr. per ton, so that the base price in the Lyons district is 705 fr. for foundry and 675 fr. per ton for

forge iron. The quota for August of phosphoric foundry has been established at 50,000 tons with the preliminary tonnages for future offering set at 35,000 tons for September and 25,000 tons for October. Prices for September and October will not be fixed until the end of the preceding month. Except for ferrosilicon, all ferroalloys are advancing.

Semi-Finished Material.—The market continues strong with a tendency to advance. Thomas steel blooms have been quoted, according to report, at 650 fr., an advance of about 70 fr. per ton in a week. Export prices are strong with few mills in a position to make spot deliveries.

Finished Material.—Domestic prices vary, depending upon the district and the maker. To domestic consumers beams of Thomas quality have been quoted 800 to 850 fr. per ton. Mills are unwilling to sell for extended delivery, except on a basis of price prevailing at that time. The new classification of merchant steel became effective in July. Export prices are weak with the few mills quoting to foreign customers maintaining beams at £4 11s. and bars at £4 13s. per metric ton, f.o.b. Antwerp, but these prices are held only with great difficulty.

Sheets.—Prices vary, depending upon how well filled the order book of the seller may be at the time of quoting. Heavy and medium gages are still available for reasonably prompt delivery. In export trade black sheets of 5 mm. and heavier are firm at £5 per metric ton, f.o.b. Antwerp.

Machinery Exports Lower in June

Total for Fiscal Year 22 Per Cent Above 1925—Imports 48 Per Cent "Up"

WASHINGTON, July 31.—Exports of machinery in June dropped more than $2,000,000 in value when compared with exports for May, the respective totals being $30,498,054 and $32,707,863. The decline was rather consistent throughout the list, with some substantial offsetting increases, such as in mining and quarrying machinery. The item for agricultural machinery decreased sharply, going to $6,113,579 as against $8,297,354, due probably to the lateness of the season for harvesting and completion of many shipments for this year.

For the 12 months ended June, 1926, exports of machinery showed a heavy gain over exports for the preceding fiscal year, the totals being $398,306,436 and $325,578,294, respectively. This gain was 22.3 per cent.

Exports of power-driven metal-working machinery listed in THE IRON AGE table comprised 591 units, valued at $506,440, in June, as against 786, valued at $484,442, in May. Total exports of power-driven metal-working machinery for June were valued at $1,024,252, and for the 12 months they were valued at $16,046,267. "Other metal-working machinery," exported in June, was valued at $358,192 and for the fiscal year the total was $4,483,046.

Imports Maintain High Level

Holding practically to the same level in June as in May, imports of machinery for the two months were

United States Exports and Imports of Machinery

	Exports of Machinery	Imports of Machinery	Exports of Metal-Working Machinery
The year 1924...	$317,040,424	$9,711,618	$8,644,444
1925			
January	28,117,952	803,829	845,986
February	23,215,776	814,702	707,445
March	33,932,473	999,237	1,364,930
April	33,468,086	1,167,099	1,694,761
May	32,164,865	861,655	1,230,914
June	27,121,123	935,487	1,003,325
Fiscal year.....	325,578,294	10,404,337	14,011,404
July	32,320,533	905,872	1,188,069
August	38,768,823	747,912	1,308,372
September	30,719,342	956,250	989,379
October	31,271,007	996,557	905,826
November	30,084,814	876,113	1,007,376
December	37,933,511	1,448,316	1,155,660
The year 1925...	385,376,676	11,577,911	13,052,916
1926			
January	34,590,693	1,659,971	853,276
February	32,269,707	1,469,170	1,294,934
March	35,241,960	1,567,912	1,297,616
April	38,755,467	1,814,021	1,479,337
May	32,707,863	1,494,156	1,004,298
June	30,498,054	1,484,127	1,024,252
Fiscal year.....	398,306,436	15,413,144	16,046,267

Imports of Machinery Into the United States

(By Value)

	June 1926	June 1925	Twelve Months Ended June 1926	Twelve Months Ended June 1925
Metal-working machine tools	$57,587	$27,820	$415,153	$321,292
Agricultural machinery and implements	455,935	320,525	4,453,319	2,956,923
Electrical machinery and apparatus	82,062	49,071	957,328	1,423,353
Other power generating machinery	39,551	706	64,468	14,965
Other machinery..	684,186	376,164	7,488,859	4,021,541
Vehicles, except agricultural ...	164,806	161,201	2,034,017	1,666,273
Total $1,484,127		$935,487	$15,413,144	$10,404,337

Machinery Exports from the United States

(By Value)

	June 1926	June, 1925	Twelve Months Ended June, 1926	Twelve Months Ended June 1925
Locomotives.....	$284,425	$905,341	$6,348,280	$7,397,497
Other Steam Engines.....	36,873	297,890	1,160,181	2,218,188
Boilers.....	117,098	191,402	1,790,491	2,001,506
Accessories and Parts.....	115,492	119,245	1,967,597	1,881,149
Automobile Engines.....	1,050,184	1,489,688	13,843,948	11,816,970
Other Internal Combustion Engines.....	624,436	285,537	7,027,823	6,096,807
Accessories and Parts.....	4,579	423,587	355,148	3,626,530
Electric Locomotives.....	72,227	22,497	2,066,493	1,440,394
Other Electric Machinery and Apparatus.....	635,669	440,562	7,007,203	7,036,017
Excavating Machinery.....	106,676	174,805	4,480,449	2,406,138
Concrete Mixers.....	64,408	59,557	830,937	680,359
Road-Making Machinery.....	154,107	16,548	1,996,933	1,241,170
Elevators and Elevator Machinery.....	344,607	152,967	4,306,220	1,987,722
Mining and Quarrying Machinery.....	1,270,469	987,721	13,727,020	9,919,144
Oil-Well Machinery.....	722,235	642,925	13,842,280	7,840,794
Pumps.....	419,344	483,397	6,276,602	6,906,601
Lathes.....	134,372	117,493	23,402,252	1,902,489
Boring and Drilling Machines.	29,097	36,183	734,082	696,621
Planers, Shapers and Slotters..	34,927	87,705	308,579	527,513
Bending and Power Presses...	114,077	52,723	475,428	708,065
Gear Cutters.....	23,164	89,414	699,991	597,989
Milling Machines.....	73,741	115,145	1,282,089	1,258,442
Thread Cutting and Screw Machines	46,089	103,075	993,429	812,773
Forging Machines.....	102,030	62,308	576,158	276,119
Sharpening and Grinding Machines.....	183,643	197,596	2,570,389	2,564,946
Other Metal-Working Machinery.....	358,192	454,655	4,483,046	4,702,797
Textile Machinery.....	726,614	603,025	12,086,316	9,677,185
Sewing Machines.....	708,591	709,466	8,651,012	8,083,310
Shoe Machinery.....	122,416	125,967	1,265,345	1,854,685
Flour-Mill and Gristmill Machinery.....	83,310	144,983	916,821	841,564
Sugar-mill Machinery.....	181,947	544,590	7,304,761	9,964,787
Paper and Pulp-Mill Machinery.....	234,490	109,247	2,489,481	1,660,543
Sawmill Machinery.....	96,975	85,733	973,118	786,589
Other Woodworking Machinery	99,073	70,969	1,387,389	1,320,062
Refrigerating and Ice-Making Machinery.....	379,283	154,061	3,661,664	1,986,089
Air Compressors.....	303,214	249,390	4,467,726	3,799,912
Typewriters.....	1,430,636	1,346,823	18,702,934	16,676,013
Power Laundry Machines.....	121,854	71,874	1,230,633	1,012,775
Typesetting Machines.....	236,039	244,947	3,550,940	3,268,421
Printing Presses.....	401,700	337,960	5,434,936	5,143,496
Agricultural Machinery and Implements.....	6,113,579	8,632,800	99,039,380	62,977,914
All Other Machinery and Parts.	12,052,226	8,310,014	116,141,534	100,850,902
Total.....	$30,498,054	$27,121,123	$398,306,436	$325,578,294

valued at $1,484,127 and $1,494,156, respectively. For the 12 months ended June, 1926, they were valued at $15,413,144, an increase of slightly more than $5,000,000 over the preceding fiscal year with a value of $10,404,337. This represented nearly 50 per cent advance.

Gains were made in every item of imported machinery, excepting electrical, for both June, 1926, and the 12 months ended with June of the present year, when compared with corresponding periods of one year ago. In the case of electrical machinery June reflected an increase over the same month of last year.

Of the 15 locomotives, valued at $284,425, exported in June, Brazil took 11, valued at $236,220, while for the 12 months, out of a total of 332, valued at $6,348,280, Brazil took 67, valued at $1,499,682. Central America took two locomotives, valued at $20,000, in June and 16, valued at $281,700, during the fiscal year. While Cuba took none in June, shipments of locomotives to that country during the 12 months represented 48 units, with a value of $964,357.

Mexico was the principal destination of exports of sewing machines in June, taking 3505, valued at $126,835, and for the 12 months Mexico took 41,522, valued at $1,371,466. The United Kingdom was sent 831 sewing machines, valued at $62,555, in June, and 33,979, valued at $1,510,283 for the fiscal year, being the greatest consumer, from point of value, for the 12 months. Colombia took 2107 sewing machines, valued at $58,976, in June and 27,204, valued at $749,062, during the 12 months. The Philippine Islands took 2216 sewing machines, valued at $61,853, for the month and 18,011, valued at $504,835, for the 12 months.

France was the leading buyer of American typewriters in June, taking 2755, valued at $157,327, while for the fiscal year France took 35,357, valued at $1,925,737. The United Kingdom was by far the leading destination of shipments of American typewriters for the 12 months, taking 61,772, valued at $3,394,793, and was close to France from point of value of shipments in June, taking 2771, valued at $154,499, the number exceeding the number shipped to France. Exports of typewriters to Australia numbered 1444, valued at $85,731, in June and 13,264, valued at $770,844, for the 12 months.

Exports of Power-Driven Metal-Working Machinery

	June, 1926		May, 1926	
	No.	Value	No.	Value
Engine lathes	14	$26,727	14	$16,164
Turret lathes	10	24,317	17	30,280
Other lathes	59	83,328	41	62,731
Vertical boring mills and chucking machines	4	2,971	5	17,534
Thread cutting and automatic screw machines	55	46,069	44	38,224
Knee and column type milling machines	30	56,706	11	18,104
Other milling machines	18	17,035	22	29,632
Gear-cutting machines	6	24,416	12	51,285
Vertical drilling machines	24	8,811	44	25,857
Radial drilling machines	1	6,144	8	18,159
Sensitive drilling machines	105	4,397	281	4,934
Other drilling machines	85	7,374	81	27,542
Shapers and slotters	20	30,522	23	13,526
Planers	3	4,395	..	111
External cylindrical grinding machines	51	89,506	44	71,939
Internal grinding machines	26	55,226	9	25,268
Metal-working tool-sharpening machines	80	18,496	130	23,263
Total	591	$506,440	786	$484,442

Printing presses to the number of 53, valued at $279,277, were exported to the United Kingdom in June, while for the 12 months the United Kingdom took 507, valued at $1,750,800. Australia took 13 printing presses, valued at $50,081, in June and 219, valued at $1,017,501, during the 12 months.

Argentina was the destination of 395 harvesters and binders, valued at $102,825, in June, and 2813, valued at $815,608, during the 12 months. France was much the greatest of the consuming countries of American harvesters and binders during the 12 months, taking 21,166, valued at $3,402,577, during that period, while during June the number shipped was 267, valued at $48,468.

NEW TRADE PUBLICATIONS

Taps.—Threadwell Tool Co., Greenfield, Mass. Catalog of 40 loose-leaf pages illustrating many varieties and sizes of taps, together with instruments used in inspection of threads and other special equipment. Complete tables are given, not only of the taps as manufactured, but also of commercial tolerances and other cognate features.

Blower Systems.—Kirk & Blum Mfg. Co., Cincinnati. Booklet of 50 pages, handsomely prepared and illustrated, which describes the construction, uses and installation of the company's blower systems for collecting, ventilating and conveying in industrial plants. Extensive information is given regarding the adaptability of the systems to the needs of various sorts of plants in which they are used.

Power Apparatus.—Cutler-Hammer Mfg. Co., Milwaukee. "Industry's Electrical Progress," an excellently printed booklet of 36 pages, bound with cardboard, telling of the progress made in the past two decades in the development of motor control apparatus. The book is designed to prove that the advantages which electric power brings to industry lie in the effectiveness with which electricity is utilized. A number of practical problems arising from the installment of power-driven equipment are answered in the concluding pages.

Testing Boilers.—Heine Boiler Co., Inc., St. Louis. Leaflet, describing a series of tests made upon a V-type boiler of the St. Joseph Gas Co.

Rubber Tired Steel Wheels.—Geneva Metal Wheel Co., Geneva, Ohio. Bulletin No. 17, describing the construction and uses of the company's steel wheels equipped with rubber tires of the press-on type, designed for tractors and smaller lifting and propelling machines.

Electrical Apparatus.—General Electric Co., Schenectady, N. Y. Bulletin GEA-135, describing the company's standard-panel switchboards, designed to handle non-grounded currents at 2300 volts. Bulletin GEA-185, describing 2, 3 and 4-pole manual contactors for currents of 600 volts or less. Bulletin GEA-319, describing the company's separable post-type insulators for outdoor station equipment designed for use on ratings up to 220,000 volts. Bulletin GEA-399, describing switchboards with either oil or air circuit breakers for use in small generating stations.

Regulators.—Westinghouse Electric & Mfg. Co., East Pittsburgh. New information on regulators for generator-voltage control, in 55-page, special publication, No. 1734. An automatic regulator consisting of an electrically operated rheostat and its control equipment, recently perfected, is described, and the text on special regulator applications brings out the important qualifications and functions of speed regulators and power factor regulators. The publication also contains discussions of regulators for direct-current generators, vibrating-type regulators for alternating-current generators, application of direct-current generators to exciter service, compensation for voltage-drop, and parallel operation of regulators.

Boiler Feed-Water Regulator.—Atlas Valve Co., 288 South Street, Newark, N. J. Four-page folder describing the Campbell feed-water regulator. Illustrations and details of construction are given, together with a report of a test at Stevens Institute of Technology.

Couplings.—Poole Engineering & Machine Co., Baltimore. Bulletin No. 108, describing the company's all-metal flexible coupling designed for use in steel, paper and rubber mills or other special drives.

Drill Chucks.—Eastern Tube & Tool Co., Inc., Brooklyn. Leaflet describing the company's keyless drill chucks with a range to ⅝ in. Information is also given about high-speed tapping attachments and drill chucks of the automatic type which may be changed while the press is in motion.

Gas Compressors.—Sullivan Machinery Co., 122 South Michigan Avenue, Chicago. Bulletin No. 83-C, 16 pages, descriptive of the company's single-stage and angle-type gas compressors, with illustrations of the units in use in a number of industrial plants.

Machinery Markets and News of the Works

SUMMER LULL PREVAILS

But Volume of Inquiry Continues Fair and Good Fall Business Looked For

Chevrolet Motor Co. in the Market and New York, New Haven & Hartford Preparing Lists for New Shops

THE quietness usual in the machine tool market at this time of year prevails. Inquiry, however, has been fair and this, together with the inquiries carried over from July and previously, is taken to be a forerunner of improved business in the late summer and in the fall. Business pending, and likely to close this month, includes three sizable railroad lists.

There is difference of opinion as to how soon a definite pickup in business will occur, but it is generally believed that the last quarter of the year will be an active period in the machine tool industry. In Cincinnati, the majority of builders have cut down production somewhat, although several large companies are maintaining high production schedules.

Several railroads have been in the market during the week, taking in most cases two or three tools. The Westinghouse Electric & Mfg. Co. has purchased against its quarterly list, and the McClintic-Marshall Co. has distributed orders for several tools for its Morava Works, Chicago.

The New York, New Haven & Hartford Railroad is preparing lists for new shops to be erected at New Bedford, Taunton and Greenbush, Mass.

Orders from the automotive industry include two special machines for the Chevrolet Motor Co.'s Flint plant, which company has an inquiry out for 16 machines including six tool-room lathes. The Nash Motors Co., Kenosha, Wis., is in the market for a few tools.

A consulting engineer in Chicago is asking for prices on a list of machine tools for a cement plant in Florida. The Atlantic Works, East Boston, has purchased several tools and is understood to be preparing a sizable list of equipment to replace that recently destroyed by fire. The Indianapolis Board of Education contemplates the purchase of 24 wood turning lathes and a pedestal grinder.

New York

NEW YORK, Aug. 3.

A LULL in machine tool buying, noticeable early in the month, has now become more pronounced but there is a fair volume of inquiry, which is believed to be a forerunner of an improving business in late summer or early fall. Considerable time now usually elapses between the sending out of an inquiry and the placing of orders, due to the fact that most purchases are for replacements and the cost reduction factor is carefully studied by prospective purchasers before their orders are placed.

Among purchases of the past week were the following: A 30-in. x 8-ft. planer and a 36-in. x 16-ft. lathe, by the New York, New Haven & Hartford; a 1500-lb. steam hammer by a St. Louis company; five Lincoln-type milling machines to a Syracuse, N. Y., company, two to a Dayton, Ohio, company and one each to manufacturers in New York and Orange, N. J.; two 13-in. geared-head lathes to a vocational school in Buffalo; a 16-in. geared-head lathe to a tool company in Houston, Tex.; a 16-in. geared-head lathe to the Atlantic Coast Line; one 8-in. vertical surface grinder to each of two companies in Fitchburg, Mass., and St. Johnsbury, Vt.; a jig boring machine to a Chicago company; a 13-in. geared-head lathe to a Cleveland aluminum manufacturer, a turret lathe to a washing machine manufacturer in Syracuse, and a side head boring mill to an electric company in Pittsburgh.

Bids are being asked by the New York Central Railroad Co., C. S. White, purchasing agent, room 344, 466 Lexington Avenue, New York, until Aug. 16 for two synchronous converters, transformers, switching equipment, signal and ventilating apparatus for power stations at Harmon, Hastings and Philipse Manor, N. Y., serial contract No. 18-1926.

The American Can Co., 120 Broadway, New York, and 4815 Santa Fe Avenue, Los Angeles, has plans nearing completion for a new plant at Santa Fe Avenue and Forty-ninth Street, last noted city, consisting of main two-story factory, 150 x 660 ft., and box-manufacturing plant, one story, 125 x 150 ft., to cost $600,000 with equipment. W. T. Fleming is chief engineer.

Fire, July 17, damaged a portion of the machinery and fixtures at the plant of the Giant Spring Bumper Co., 425-33 East 102nd Street, New York. An official estimate of loss has not been announced. The damage will be replaced.

Charles Clark, 441 East Tremont Avenue, New York, architect, has plans for a three-story automobile service, repair and garage building, 100 x 140 ft., to cost $175,000 with equipment.

The American Ice Co., City Center Building, Philadelphia, operating the Knickerbocker Ice Co., 41 East Forty-second Street, New York, has arranged an expansion and improvement program to cost in excess of $1,000,000. The project includes two new ice-manufacturing plants at Bayside and Great Neck, L. I., respectively, each reported to cost in excess of $200,000, with equipment. C. Leslie Weir, New York address, is company engineer.

The Packard Motor Car Co., Broadway and Sixty-first Street, New York, has plans nearing completion for its proposed three-story service and repair building, 100 x 300 ft., at Crotona Avenue and Fordham Road, to cost close to $1,000,000 with equipment. Albert Kahn, Marquette Building, Detroit, is architect. L. J. Eastman is president of the New York organization.

The superintendent of lighthouses, Staten Island, N. Y., is asking bids until Aug. 13 for gages for oil tanks at the general lighthouse depot, St. George, S. I., proposal 22179.

J. M. Felson, 250 West Fifty-seventh Street, New York, architect, is completing plans for a seven-story automobile service, repair and garage building at 257 West Sixty-fourth Street, to cost approximately $275,000 with equipment. The same architect has also filed plans for a similar two-story building, 26 x 126 ft., on Sheridan Avenue, to cost about $60,000.

The National Electric Power Co., under the direction of Victor Emanuel, 61 Broadway, New York, has been acquired by Samuel Insull, Chicago, and associates, operating the Commonwealth Edison Co., Middle West Utilities Co., and other electric light and power interests, with headquarters at 72 West Adams Street, Chicago. The acquired company has properties in several states, with total assets valued at $95,000,000. The new owners contemplate expansion. Victor Emanuel will continue as manager of the organization.

James P. Boyland, 120 East Fordham Road, Bronx, New York, architect, has filed plans for a two-story automobile service, repair and garage building, 100 x 150 ft., to cost approximately $100,000 with equipment.

The Board of Education, Bayport, L. I., contemplates the installation of manual training equipment in its proposed two-story and basement high and grade school, to cost $250,000, for which bids have been asked on a general contract. Wilson Potter, 22 East Seventeenth Street, New York, is architect.

The National Power & Light Co., 71 Broadway, New York, an interest of the Electric Bond & Share Co., same address, is arranging for a bond issue of about $9,000,000, a portion of the proceeds to be used for extensions and improvements.

The Drill Steel Sharpening Corporation, New York, has leased the building at 509 East Sixty-third Street and will occupy for a local plant.

The Jersey Central Power & Light Co., 165 Broadway, New York, operating at Morristown, N. J., and vicinity, has secured permission to issue bonds for $2,302,000 and preferred stock for $690,700, a portion of the proceeds to be used for extensions. The company has work under way on a new steam-operated electric generating plant at Whippany, N. J. A transmission line will be constructed. The entire project is estimated to cost close to $1,500,000.

Fire, July 25, destroyed a portion of the mill of J. William Hatt, Inc., 123-25 Plane Street, Newark, manufacturer of sash, doors and other millwork products, with loss reported at $75,000, including equipment. It is planned to rebuild.

The Mono-Service Co., Verona Avenue and Oraton Street, Newark, manufacturer of paper products, has awarded a general contract to the Shore Construction Co., Essex Building, for a three-story addition, 113 x 120 ft., to cost about $200,000 with equipment. William Clifford, Jr., 360 Union Avenue, Elizabeth, N. J., is architect.

The Borough Council, Florham Park, N. J., is said to be planning the installation of pumping equipment in connection with a proposed municipal water system. The entire project will cost about $140,000. Clyde Potts, Morristown, N. J., is engineer.

The plant and business of the Rajah Auto Supply Co., Locust Avenue, Bloomfield, N. J., manufacturer of spark plugs, etc., has been acquired from David B. Mills, heretofore president and principal stockholder, by four employees. Plans are said to be under advisement for expansion. The new officers are Robert A. Bell, president; Wilbur D. Washburn, treasurer; George Berthold, vice-president and engineer, and E. G. Keeler, secretary.

The Rapid Addressing Machine Co., 46 West Twenty-third Street, New York, is pushing construction on its new plant on First Avenue, Roselle, N. J., and expects to have it ready for machinery installation soon. It will be one-story, 177 x 321 ft., sawtooth roof type, estimated to cost $150,000. Barclay White & Co., Philadelphia, are general contractors. The Ballinger Co., 100 East Forty-second Street, New York, is architect.

The Balbach Smelting & Refining Co., Newark, N. J., has acquired control of the Stotter Metal Co., Cleveland. The companies have closely cooperated for some time and the Newark company had held an option to purchase a controlling interest in the Stotter plant. J. P. Stotter has retired as president and director and is succeeded by James W. Paterson, vice-president of the Balbach company. Thomas Thomson and James MacNee will remain as vice-president and secretary-treasurer respectively. Frank H. Andrus, formerly of Waterbury, Conn., has succeeded L. B. Stotter as vice-president of the Stotter company.

The Rollamatic Screen Corporation, 15 Park Row, New York, has been incorporated with 200 shares of capital stock, no par value, to manufacture a patented rolling window screen.

The Alexander Oil Burner Corporation, 163 Northern Boulevard, Flushing, N. Y., has been organized to manufacture an automatic oil burner. Alexander Schein is president.

Winne-Cottam, Inc., 380 Mill Street, Poughkeepsie, N. Y., has been incorporated to manufacture two types of burglar-proof spring locks. It is now completing dies and other tools for the manufacture of these locks. Howard G. Winne and Herbert G. Cottam are the incorporators.

The Industrial Iron Works, 359 Van Horne Street, Jersey City, N. J., has been incorporated for the manufacture of steel tanks, pipe, ball joints, long turn elbows, "Y" branches and "Y" valves; the company will also make repairs to boilers, engines, pumps, buckets, etc. Officers are W. V. Bechtold, president; Jacob Bertram, vice-president, and E. P. Cupo, secretary-treasurer. The company has been in business since March, 1924, as a partnership.

Philadelphia

PHILADELPHIA, Aug. 2.

PLANS have been filed by the American Pulley Co., 4200 Wissahickon Avenue, Philadelphia, for a one-story addition.

Walker Brothers, 620 South Delaware Avenue, Philadelphia, manufacturers of electrical equipment, have plans under way for an addition to their proposed new plant at Spring Mill, Pa., comprising property recently acquired from the Philadelphia Terra Cotta Co. The extension will be one and two-stories, 70x115 ft., to cost about $75,000. Existing portions of the plant will be remodeled and new equipment installed. The works will be given over to the manufacture of steel tubing and kindred iron and steel specialties. The Ballinger Co., Twelfth and Chestnut Streets, is architect.

The Chambers Brothers Co., Fifty-second and Media Streets, Philadelphia, manufacturer of clay-working machinery, has awarded a general contract to the A. Raymond Raff Co., 1635 Thompson Street, for rebuilding the portion of its plant recently destroyed by fire with total loss reported at $25,000. Equipment replacements will also be made.

Henry E. Baton, Inc., 1713 Sansom Street, Philadelphia, contractor, has taken an award for a one-story automobile service, repair and garage building at Penn and Comly Streets, to cost $200,000 with equipment.

A general contract has been let by the Baltimore & Ohio Railroad Co., Baltimore, and the Reading Co. (Philadelphia & Reading Railroad), Philadelphia, to the Hughes-Foulkrod Co., Commonwealth Building, for their proposed joint terminal and warehouse building at Delaware, Jackson and Ritner Streets, to be eight-stories, 90x900 ft., estimated to cost $7,500,000 with equipment. The cold storage and refrigerating section, comprising upper stories, will approximate 1,300,000 cu. ft., and has been leased for a long term of years to Horace P. Serrill, head of the Quaker City Cold Storage Co., Water and Spruce Streets. Elevating, conveying and other freight-handling equipment will be installed in the terminal portion. H. A. Lane, B. & O. Building, Baltimore, is engineer for the Baltimore & Ohio Railroad; and Samuel T. Wagner, Reading Terminal, engineer for the Reading Co.

A number of electric traveling cranes will be installed in the proposed hydroelectric generating plant of the Susquehanna Power Co., operated by the Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, at Conowingo, Md. The complete project will cost in excess of $20,000,000.

The Board of Trustees, St. Luke's and Children's Homeopathic Hospital, Franklin, Eighth and Thompson Streets, Philadelphia, has plans for a new power house at the institution in connection with other buildings. The entire project will cost in excess of $500,000. Amos W. Barnes, Perry Building, is architect.

The Ajax Metal Co., 46 Richmond Street, Philadelphia, has awarded a general contract to M. Ward Easby, Inc., Schaff Building, for its proposed one-story addition to cost approximately $20,000.

The Board of Education, Gloucester City, N. J., is said to be planning the installation of manual training equipment in its proposed junior and senior high school at Cumberland and Joy Streets, estimated to cost $265,000, for which bids are being asked on a general contract until Aug. 20.

C. V. Hill & Co., Inc., 360 Pennington Avenue, Trenton, N. J., manufacturer of refrigerators and refrigerating apparatus, has awarded a general contract to Burton & Son, Trenton, for a two-story addition, 64x162 ft., to cost about $40,000 with equipment.

Following its recent reorganization, the Harrisburg Foundry & Machine Co., Harrisburg, Pa., is advancing production at its plant, particularly for the manufacture of electric engines and parts. During the past few weeks the working force has been increased 50 per cent and arrangements have been made for a night shift. It is said that orders have been booked to insure the present schedule for a number of months.

Fire, July 23, destroyed a portion of the plant, including kilns, of the Lehigh Brick Works, Allentown, Pa., with loss reported at $45,000. It is planned to rebuild.

The Philadelphia Suburban Gas & Electric Co., Sixth and Welsh Streets, Chester, Pa., has plans for a two-story machine shop, service and storage building, 38x170 ft., to cost $65,000 with equipment. J. D. Shattuck is manager.

The Scranton Coal Co., Scranton, Pa., is said to be arranging an expansion and improvement program at its collieries and coal mines to cost close to $1,000,000, including enlargement of present breakers and the installation of considerable additional machinery. Electric power equipment will be installed at the mines.

The Crane Market

INQUIRIES for electric overhead cranes continue to accumulate but buying is still slack. There is a moderate volume of locomotive crane inquiry pending but this market is also inactive. Stone & Webster, Inc., Boston, has issued an inquiry for a 150-ton overhead crane for the Southern California Edison Co. The American Car & Foundry Co. is reported inquiring for a 2-ton hand power crane with electric hoist for its Detroit plant. The three small capacity overhead cranes for the plant of the American Sugar Refining Co. in Brooklyn, N. Y., are expected to close shortly.

Among recent purchases are:

Niagara Falls Power Co., Niagara Falls, N. Y., a 75-ton, 45-ft. span, 4-motor overhead crane from the Niles-Bement-Pond Co.

Stone & Webster, Inc., Boston, two 150-ton overhead cranes for the Conowingo power project, reported purchased from the Niles-Bement-Pond Co.

M. W. Kellogg Co., Jersey City, N. J., a 5-ton, 33-ft. 6-in. span overhead crane from the Milwaukee Electric Crane & Mfg. Co.

Miami Copper Co., Miami, Ariz., a 6-ton, single I-beam hand power crane with electric hoist from the Chisholm-Moore Mfg. Co., through Manning, Maxwell & Moore.

Central Furnace Co., Massillon, Ohio, a 5-ton, 52-ft. span electric traveling crane from the Shaw Electric Crane Co.

Union Carbide Co., Niagara Falls, N. Y., a 40-ton, 32-ft. span overhead crane from the Shaw Electric Crane Co.

Elyria Iron & Steel Co., Elyria, Ohio, a 5-ton, 67-ft. span electric traveling crane from the Shaw Electric Crane Co.

United States Gypsum Co., Chicago, a 1-ton, 32-ft. span electric traveling crane from the Northern Engineering Works.

Central Furnace Co., Massillon, Ohio, through the Koppers Co., a 5-ton, 50-ft. span grab bucket crane from the Shaw Electric Crane Co.

The Gardner Governor Co., Quincy, Ill., three 5-ton overhead electric cranes from the Shaw Electric Crane Co.

Fire, July 24, destroyed a portion of the plant of the Victory Chain Co., York, Pa., operated by the International Chain & Mfg. Co., Jefferson Building, Philadelphia, with loss reported in excess of $35,000 including equipment. Plans are under advisement for rebuilding.

The Dean Brothers Co., pumping machinery, Indianapolis, has established a direct factory sales and service office in the Real Estate Trust Building, Philadelphia, for the sale of its products and those of the Dean Hill Pump Co.

New England

BOSTON, Aug. 2.

MOST of the local machine tool houses report business quiet. There has been some buying, however, of single tools, which is the aggregate amounted to a fairly sizable turnover. The Atlantic Works, East Boston, has bought several tools, including a small tool-room lathe and a 4-ft. radial drill, and is preparing a list of equipment needed to replace that recently destroyed by fire and water. The New York, New Haven & Hartford Railroad is inquiring for a turret lathe and a milling machine for a New York State shop and is preparing lists for which tools will be required for new shops to be erected at New Bedford, Taunton and Greenbush, Mass. A central Massachusetts manufacturer is about to close on a grinding machine costing more than $8,000, and several other plants in this State will, it is reported, close on at least six tools, the aggregate selling price of which will run higher than $36,000. Dealers state that for the first time in years buyers of new tools are basing purchases on production results and reductions in manufacturing costs rather than on initial cost.

The used machine tool market is less active than that for new machinery. Recent sales include a small power press to a Boston shop, a 14-in. lathe and an upright drill to a Cape Cod garage; a two-spindle drill to a Greater Boston plant, and a 14-in. lathe, a small milling machine and a wet tool grinder to a northern Massachusetts shop.

Small tool sales are somewhat more active, but July bookings will not come up to those for June.

The Varrs Foundry, Rockville, Conn., is making extensive repairs following a recent fire.

The Walker & Pratt Mfg. Co., Watertown, Mass., manufacturer of stoves, will erect a one-story, 55 x 140 ft., manufacturing plant unit. Plans are private.

Bids are being taken for a three-story, 103 x 144 ft., utility unit to be erected at the Naval Dry Dock Reservation, South Boston. Plans are private.

Bids closed July 30 for an engine house, machine shop and storehouse to be erected at New Bedford, Mass., by the New York, New Haven & Hartford Railroad. Plans are private.

The City Welding Co., Pawtucket, R. I., has been organized and will conduct a welding shop for all classes of work. It will shortly be in the market for a moderate amount of equipment.

Ralph K. Mason, president Trumbull-Vanderpoel Electric Mfg. Co., Inc., Bantam, Conn., has resigned, having sold his third of the outstanding $200,000 capital to Paine-Webber & Co., Boston and Hartford bankers.

The Connecticut Light & Power Co., Waterbury, Conn., is disposing of a bond issue of $8,000,000, a portion of the fund to be used for extensions and improvements, including completion of a new power plant now in course of construction. J. Henry Roraback is president.

Ovens, power equipment, conveying and other machinery will be installed in the proposed new plant to be constructed by the J. B. Blood Co., Lynn, Mass., to cost about $400,000.

The Great Eastern Sugar Co., Medford, L. I., is said to be considering the construction of a new beet sugar mill in the vicinity of Hartford, Conn., following arrangements for the growing of sugar beets by local farming interests. The proposed mill is estimated to cost close to $1,000,000 with machinery. Kurt Grunwald is one of the heads of the organization. William F. Jardine, State Secretary of agriculture, Hartford, is interested in the project.

I. Richmond, 248 Boylston Street, Boston, architect, has plans for a six-story automobile service, repair and garage building at 1022 Massachusetts Avenue, to cost $160,000 with equipment.

The Derby Gas & Electric Corporation, Derby, Conn., recently formed under Delaware laws, is disposing of a bond issue of $5,500,000, the proceeds to be used for the acquisition of the Derby Gas & Electric Co., and the Wallingford Gas Co., Wallingford, Conn., and for proposed extensions and improvements. H. L. Clarke is president.

The Buff & Buff Mfg. Co., 98 Green Street, Jamaica Plain, Boston, manufacturer of engineering and surveying instruments, has awarded a general contract to the C. C. Temple Co., 99 Chauncy Street, for its one-story addition to cost $45,000 with equipment.

The Danbury Power & Transportation Co., Danbury, Conn., will issue bonds for $500,000 and 5000 shares of stock, no par value, the proceeds to be used in part for expansion and improvements.

The J. W. Greer Co., 119 Windsor Street, Boston, manufacturer of bakers' and confectioners' machinery and parts, is said to be completing plans for the early construction of a two-story and basement addition, 65 x 80 ft., to cost in excess of $45,000 with machinery.

South Atlantic States

BALTIMORE, Aug. 2.

PRELIMINARY plans are under advisement by the Hagerstown Orchard Spray Material Co., Hagerstown, Md., for rebuilding of the portion of its plant destroyed by fire July 24, with loss estimated at $35,000 including equipment.

The Rustless Iron Corporation, Baltimore, organized a number of months ago to take over the former plant of the Hess Steel Co., has been remodeling the works and will begin production for rustless and stainless iron specialties.

The National Handle Co., Plymouth, N. C., has awarded a general contract to the W. C. Miller Co., Plymouth, for a new plant for the manufacture of handles and other turned wood products, consisting of two one-story factories,

50 x 200 ft., and power plant, 50 x 50 ft., reported to cost about $70,000 with machinery.

The Virginia Public Service Co., Newport News, Va., has arranged for a preferred stock issue of $1,600,000, a portion of the fund to be used for extensions and improvements in power plants and system. H. G. Polhemus is vice-president.

H. C. Davis, Hopewell, Va., architect and builder, has inquiries out for a quantity of contractors' equipment, including hoists, concrete mixers, chain blocks, picks, shovels, pumping machinery, trucks, etc.

The Board of District Commissioners, District of Columbia, Washington, is asking bids until Aug. 11 for a quantity of reinforcing steel for use at the district training school, near Laurel, Md., until Aug. 12, for quantities of automobile and motorcycle license plates for 1927.

The Walterboro Ice Co., Walterboro, S. C., operated by E. A. Easterlin, Denmark, S. C., has tentative plans under advisement for extensions and the installation of a new ice-making machine and auxiliary equipment.

The Baltimore & Ohio Railroad Co., B. & O. Building, Baltimore, is said to be completing plans for new shop and terminal facilities at Ohio Junction, Youngstown, to cost about $1,000,000. The work will include the erection of an engine house with repair shops and other structures, with new yard to handle about 2000 cars at one time.

The A. Weiskittel & Son Co., Twelfth and East Lombard Streets, Baltimore, manufacturer of stoves and fittings, will soon proceed with the erection of its proposed three-story addition to cost close to $50,000. It will be used primarily for storage and distributing service. H. C. Weiskittel is president.

The Bates Valve Bag Co., 8200 South Chicago Avenue, Chicago, will soon lay foundations for its proposed one-story branch plant at Covington, Va., where a 2-acre tract has been acquired. The initial structure will be 80 x 240 ft., to cost approximately $50,000 with equipment. John E. Cornell is president.

N. A. Gregory, Oxford, N. C., is planning for the purchase of drop forge equipment for installation in a local shop for the production of a patented garden hoe.

The Common Council, Warrenton, N. C., is considering the installation of pumping machinery in connection with proposed extensions and improvements in the municipal waterworks. A special election has been called on Aug. 17 to approve bonds for $70,000 for the work.

The North Carolina Public Service Co., Greensboro, N. C., is disposing of a bond issue of $3,125,000, a portion of the proceeds to be used for extensions and improvements. W. S. Barstow is president.

The Hackley Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for an open type dragline bucket, also a clamshell bucket, about ¾-yd. capacity; one pipe machine to handle stock up to 4 in. diameter; one 5-ton capacity ice-making machine, using raw water, York or similar type; one rip saw; two 15-kw. transformers; one concrete mixer, about 7-yd. capacity, operated with gasoline engine, and one planer, 36 to 48 in., Gray or similar type.

The Mengel Co., Louisville, manufacturer of wood boxes, etc., has plans for extensions and improvements in its branch plant at Winston-Salem, N. C., converting a portion of the works for the production of fiber containers. Additional equipment will be installed.

The Moon Motor Co., 4400 North Main Street, St. Louis, manufacturer of automobiles, is planning for a new factory branch on Broughton Street, Savannah, Ga., with complete service, repair and parts departments, reported to cost more than $65,000.

The Virginia Electric & Power Co., Richmond, Va., has begun the construction of a power plant, 25 x 30 ft., for auxiliary service.

R. P. Johnson, Wytheville, Va., machinery dealer, has been making inquiries for an automatic band saw lap grinder, suitable for handling 12-in. saws.

The City Council, Greenville, S. C., is considering the installation of pumping equipment in connection with proposed extensions in the municipal waterworks, for which a bond issue of $65,000 has been approved.

The Board of Trustees, Clemson College, Clemson College, S. C., has awarded a general contract to C. M. Guest & Son, Anderson, S. C., for a one-story engineering and shop building to cost approximately $50,000. Equipment purchases will be handled separately.

The Southern Wire & Iron Works, Inc., 55 Martin Street, Atlanta, Ga., is said to have preliminary plans for a one-story addition, 200 x 200 ft., for the manufacture of metal window guards, ornamental iron, wire specialties, etc.

The West Virginia & Maryland Mfg. Co., Thurmont, Md., has been inquiring for a quantity of machinery for the manufacture of wood spikes for railroads. H. H. Rennix is general manager.

The Utility Commission, Elizabeth City, N. C., Dr. A. L. Pendleton, chairman, is asking bids until Aug. 17 for equipment for the municipal waterworks, including a pumping plant with motor-driven and gasoline engine centrifugal pumping units, one 50,000-gal. capacity steel water tank and tower, water purification equipment, etc. William C. Olsen, Raleigh, N. C., is consulting engineer.

J. Brown Neil and C. L. Cobb, Rock Hill, S. C., are said to be organizing a company to establish a plant for the manufacture of a mechanical cotton-picking machine and parts, invented by the first noted.

The World Radio Corporation, 307 Thirteenth Street, N. W., Washington, has taken over the assets of the Highland Machine & Foundry Co., and has engaged in the manufacture of radio receivers and accessories.

Pittsburgh

PITTSBURGH, Aug. 2.

THE machine tool market is showing a very fair amount of activity for this time of year. The Westinghouse Electric & Mfg. Co. is buying against its quarterly list and among other items has purchased three high-speed hammers. The McClintic-Marshall Co. has distributed orders for a radial drill, lathe, planer, boring mill and a shaper for installation at its Morava works, Chicago. Single tool orders are fairly numerous and several local dealers report July business to have run ahead of that for June both in value and number of sales. The market is quiet in point of new inquiries, but not in recent years has the trade had as much business in the summer season to work on. In heavy equipment, the interesting feature has been the distribution of tables and other auxiliary equipment for the new H-beam mill for the Homestead works of the Carnegie Steel Co.

A fund of about $100,000 for expansion and improvements is being arranged by the Titusville Iron Works, Titusville, Pa., manufacturer of engines, pumps, boilers, etc. The works will include the construction of a new foundry and the removal of present branch foundries at Buffalo and Warren, Pa., to the main Titusville works, where all casting operations will be concentrated. Additional equipment will be provided in this department as well as other divisions. John T. Dillon is president.

The oil refinery of the Crown Central Petroleum Co., Clarendon, Pa., has been acquired by new interests headed by L. C. Jamieson, Warren, Pa., for $150,000. The new owners plan for immediate production, with extensions and betterments in present facilities. The Crown Central company is devoting operations to its plant at Houston, Tex., and contemplates expansion.

The Westinghouse Electric & Mfg. Co., East Pittsburgh, will proceed with the erection of a five-story and basement addition, 70 x 225 ft., at its works at Sharon, Pa., estimated to cost $250,000 with machinery. Bernard H. Prack, Martin Building, Pittsburgh, is engineer.

Fire, July 26, destroyed a portion of the plant of the Lastik Products Co., Wampum, Pa., manufacturer of roofing products, with loss reported in excess of $40,000 including equipment. The main building of the plant of the American Cement Tile Co., on adjoining site, was destroyed by the same fire, with loss of about $35,000. Both companies plan early rebuilding.

The plant and business of the Barboursville Brick & Tile Co., Barboursville, W. Va., have been acquired by new interests, headed by J. C. Alderson, 1527 Sixth Avenue, Huntington, W. Va. Plans are under way for immediate production, with expansion and betterments in equipment and facilities.

The Universal Portland Cement Co., Universal, Pa., will begin the erection of an addition to replace the present stockhouse B, which will be dismantled, estimated to cost $250,000 with equipment. Headquarters are 208 South La Salle Street, Chicago.

The Washington Mould Machine & Foundry Co., Washington, Pa., has awarded a general contract to Grange & Goebel, Washington Trust Building, Washington, for a two-story and basement addition, 55 x 136 ft., to cost about $45,000. A. L. Houser, Renshaw Building, Pittsburgh, is architect. It will be equipped primarily as a machine shop.

Fire, July 29, destroyed a portion of the plant of the Brown Equipment Co., Ferndale, near Johnstown, Pa., man-

ufacturer of mining machinery, with loss reported at $75,000 including machinery. It is planned to rebuild.

The Adamston Flat Glass Co., Clarksburg, W. Va., has work in progress on extensions and improvements in the former plant of the Clarksburg Glass Co., and will provide equipment for the production of heavy and light sheet glass. The company is capitalized at $250,000 and headed by A. B. Curtin.

The Kidwell Boiler Co., 288 East Water Street, Milwaukee, is closing negotiations for the purchase of the branch plant of the Heine Boiler Co., at Phoenixville, Pa., for about $1,000,000 and is said to be planning to establish its main works at this location. Extensions and betterments will be made and employment given to about 150 men. The Heine company discontinued operations at the Phoenixville plant a number of months ago, concentrating production at its main works at St. Louis.

Cleveland

CLEVELAND, Aug. 2.

MACHINE tool sales of local dealers during July held close to the June volume. A fair amount of inquiry for single machines and small lots is pending. The Chevrolet Motor Co. placed two large special machines for its Flint, Mich., plant with a Cleveland manufacturer and has an inquiry out for 16 machines, including six 16 and 18-in. tool-room lathes. The Aluminum Co. of America purchased a 48-in. planer from the Cleveland Planer Co. for its Arvida, Que., plant. The latter company has also received an order from a Chicago manufacturer for a 36-in. planer. A local manufacturer of turret lathes reports quite an improvement in single machine orders the past few days, as compared with the early part of the month.

The Southern Wheeling Co., a subsidiary of the American Brake Shoe & Foundry Co., will erect a plant at Air Line Junction, Toledo, Ohio.

The Timken Roller Bearing Co., Canton, Ohio, has taken bids for its factory extensions which will involve an estimated expenditure of $1,000,000.

The Ohio Valley Metal Art Mfg. Co., Bellaire, Ohio, is erecting a plant for the manufacture of metal products. Theodore Meyer is president and Paul Jones, secretary.

The Strouse Pipe & Machinery Co., Fostoria, Ohio, is having plans prepared for rebuilding its factory recently burned. A. B. Strouse is manager.

The Willard Storage Battery Co., Cleveland, has taken bids for a plant extension 135 x 212 ft.

The Cleveland Wrought Products Co., West Fifty-eighth Street at Denison Avenue, Cleveland, is now completing extensions to plant No. 1, increasing capacity in the cap and set screw and assortment division, and relieving congestion in the division which manufactures rivet sets, air-hammer pistons, paving breaker steels, etc.

Detroit

DETROIT, Aug. 2.

THE Benton Harbor Malleable Industries, Inc., Benton Harbor, Mich., has been organized to take over and consolidate four local companies, each operating individual plants, comprising the Benton Harbor Malleable Foundry Co., Benton Harbor Forging Co., Benton Harbor Auto Machine Co., and the General Die Casting Co. The new company is arranging a bond issue of $460,000 the proceeds to be used to carry out the merger and for proposed expansion.

The Board of Education, East Grand Rapids, Mich., plans the installation of manual training equipment in its proposed new high school estimated to cost $450,000, for which plans will be prepared by Robinson & Campau, Michigan Trust Building, Grand Rapids, architects. Byron E. Parks & Son, Kelsey Building, Grand Rapids, is mechanical engineer.

The General Necessities Corporation, Detroit, operating ice-manufacturing and cold storage plants and other utilities, has arranged for a bond issue of $3,000,000, a portion of the proceeds to be used for expansion and betterments. David A. Brown is president.

The Harrotto Patent Co., Lansing, Mich., recenty organized by Otto Kirchen, head of the Kirchen Machine Co., Lansing, and associates, is completing plans for the early establishment of a new plant for the manufacture of a patented oil burner. Harry Shetzer, Lansing, is also interested in the new company.

The Oakland Motor Car Co., Pontiac, Mich., has awarded a general contract to the Austin Co. for its proposed new local plant, to cost close to $5,000,000 with machinery.

The Common Council, Center Line, Mich., plans the installation of pumping equipment in connection with the proposed installation of a complete municipal water system estimated to cost $175,000.

The Board of Education, Lansing, Mich., plans the installation of a vocational department in its proposed central high school estimated to cost $2,000,000, for which plans will be prepared by J. N. Churchill, Prudden Building, Lansing, architect. Pond & Pond, Martin & Lloyd, 6 North Michigan Avenue, Chicago, are consulting architects.

The Chevrolet Motor Co., General Motors Building, Detroit, has awarded a general contract to the Miller-Uhlman Construction Co., Bay City, Mich., for the erection of a one-story addition at its Bay City plant, 60 x 130 ft., equipped as a heat treating department. It will cost about $80,000.

The New York Central Railroad Co., Detroit, is arranging to expand operations at its Adrian, Mich., repair shops, and will increase the working force from 160 to about 225 men.

The Cadillac Malleable Iron Co., Cadillac, Mich., has preliminary plans for an addition to its plant and will carry out the work in connection with a general expansion program to cost approximately $250,000. A bond issue is being sold to provide financing.

Buffalo

BUFFALO, Aug. 2.

PLANS have been filed by the Great Lakes Portland Cement Co., Buffalo, for another unit at its plant at 999 Hamburg Turnpike, now in course of erection, to be one story, estimated to cost $75,000.

The Parker White Metal & Machine Co., Twenty-third Street, Erie, Pa., has tentative plans for a new three-story addition, 60x100 ft., to cost $35,000. The Erie Planning and Estimating Service, Scott Building, is architect. W. A. Parker is general manager.

The Pierce, Butler & Pierce Mfg. Corporation, Syracuse, N. Y., manufacturer of cast iron boilers and radiators, etc., is disposing of a bond issue of $250,000, issued in the name of the Federal Radiator Co., Zanesville, Ohio, a division of its organization, with proceeds to be used for financing and general expansion.

The Board of Education, Union Free School District No. 9, Lennox, N. Y., contemplates the installation of manual training equipment in its proposed two-story high school on North Peterboro Street, estimated to cost $175,000, for which plans are being prepared by Prof. E. Hallenbeck, Syracuse University, Syracuse. C. H. Hoffman, Canastota, N. Y., is a member of the board, in charge.

The Buffalo-Nash Corporation, 1247 Main Street, Buffalo, local representative for the Nash automobile, has awarded a general contract to Metz Brothers, 1295 Fillmore Avenue, for a two-story service, repair and garage building, 120 x 155 ft., to cost about $80,000. S. F. Swain is manager.

The Mohawk Hudson Power Corporation, Utica, N. Y., will take over the Syracuse Lighting Co., Syracuse; Seneca River Power Co., Syracuse; and the Mexico Electric Co., Mexico, N. Y., and will consolidate with its organization, now including the Utica Gas & Electric Co., and the Fulton County Gas & Electric Co. Extensions are planned.

In connection with the recent organization of the Landon Radiator Co., Buffalo, and its purchase of the former foundry of the Pierce-Brown Co., North Tonawanda, N. Y., work will proceed at once on modernizing the plant with the installation of considerable new equipment. The company will specialize in the production of steam and hot water radiators of entirely new type, comprising units of cast iron tubular design. The plant will be developed for an initial output of 40 tons per day, giving employment to about 150 men. Later it is purposed to expand the works with a division for the production of boilers.

The Board of Education, Fayetteville, N. Y., is said to be planning the installation of manual training equipment in a proposed high school addition estimated to cost $100,000, for which plans will be prepared by Randall & Vedder, S. A. & K. Building, Syracuse, N. Y., architects.

The Cattaraugus County Brick Co., Olean, N. Y., recently organized with a capital of $100,000 has acquired the former local plant of the Allegany Valley Brick Co. The new owner will make improvements with the installation of additional equipment. It is purposed to begin production soon, giving employment to about 50 men. Lloyd I. Foster is president and A. L. Sleeman, Warren, Pa., secretary and treasurer.

The Chemical Toilet Corporation, Syracuse, N. Y., will

let contracts soon for a new factory on the Jamesville Road, town of Salina, N. Y., for the manufacture of gasoline, oil and storage tanks. It will be one story, 90 x 360 ft., and cost $115,000.

Chicago

CHICAGO, Aug. 2.

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Gulf States

BIRMINGHAM, Aug. 2.

WORK will begin at once on a new gasoline refining plant in the Parrot oilfield, near Breckenridge, Tex., for the Humble Oil & Refining Co., Houston, Tex., consisting of ten units, to cost $500,000 with equipment.

The Roseland Veneer & Package Co., Roseland, La., plans the complete electrification of its proposed new mill to replace a plant destroyed by fire several weeks ago. It is estimated to cost in excess of $250,000 with equipment.

The Texas & Pacific Railroad Co., Dallas, Tex., has plans for extensions and improvements in its yards and shop at Paris, Tex., to cost about $30,000.

The Common Council, Deerfield, Fla., is planning the installation of a pumping plant for the municipal waterworks. The Riddle Engineering Co., West Palm Beach, Fla., is engineer.

The Birmingham Engine & Machinery Corporation, Birmingham, has inquiries out for a 6-in. horizontal boring bar with 12-ft. table.

The Louisiana Pulp & Paper Co., Bastrop, La., will proceed with the construction of its one-story addition by day labor, 100 x 560 ft., to cost in excess of $500,000 with machinery.

Ovens, power equipment, conveying and other machinery will be installed in the proposed new plant to be erected by the Seybold Baking Co., Miami, Fla., estimated to cost close to $1,000,000, designed as the largest unit of its kind in the South. It is purposed to have the plant ready for service in November. New plants are also projected at Daytona Beach and Tampa, Fla. The company is a subsidiary of the Southern Baking Co.

The Central Power & Light Co., Natchez, Miss., operating electric light and power and ice-manufacturing plants in Mississippi, Texas and other localities, has arranged for a bond issue of $14,500,000, a portion of the fund to be used for extensions and improvements. The company is affiliated with the Middle West Utilities Co., 72 West Adams Street, Chicago. Martin J. Insull is president.

The Eagle Claw Auto Boot Co., 736 South Beckley Street, Dallas, Tex., has inquiries out for a 15 ton power press; also for a stripping machine. J. L. D. Bevans is head.

The Gulf Refining Co., Houston, Tex., with headquarters in the Frick Annex, Pittsburgh, has plans for a new oil storage and distributing plant at Waco, Tex., to cost about $45,000 with equipment.

The Oxford Ice Co., Oxford, Miss., will rebuild the portion of its ice-manufacturing plant destroyed by fire July 20, with loss reported at $17,000 including equipment.

The Norwood Garage, Littlefield Building, Austin, Tex., has plans for a four-story service, repair and garage building, 80 x 135 ft., with wing extension, 50 x 100 ft., to cost $135,000 with equipment. Foundations have been designed for four additional stories later. Giesecke & Harris, 207 West Seventh Street, are architects. O. O. Norwood is head.

The Common Council, White Deer, Tex., plans the installation of pumping machinery for deep well service in connection with a proposed municipal waterworks. A bond issue of $30,000 is being arranged for the project. Morrison & Hasie, Dallas, Tex., are engineers.

The Seaboard Air Line Railway Co., Continental Building, Baltimore, has awarded a general contract to Sutton & Sutton, Atlantic National Bank Building, Jacksonville, Fla., for its new car and locomotive repair shops, engine house and administration building at Indiantown, Fla., reported to cost in excess of $250,000 with equipment. W. D. Faucette, Savannah, Ga., is chief engineer.

The Price-Booker Mfg. Co., Houston, Tex., food packer, is said to be planning the installation of a cold storage plant at its proposed branch packing house at De Ridder, La., to cost in excess of $75,000.

The Board of Trustees, Texas State University, Austin, Tex., has plans for a new steam-operated power house estimated to cost $250,000 with equipment. The Herbert M. Greene Co., Santa Fe Building, Dallas, Tex., is architect. H. C. Weaver, University Station, is mechanical engineer.

The J. L. Kelley Construction Co., Wayne Building, Miami, Fla., has inquiries out for a number of air compressors, Ingersoll-Rand or Sullivan types.

The Bedford-Carthage Stone Co., Cisco, Tex., is said to be planning the construction of a new stone-finishing and polishing plant to cost approximately $50,000 with equipment. D. E. Braucht is president.

Pacific Coast

SAN FRANCISCO, July 28.

CONTRACT has been let by the American Can Co., Third and Twenty-second Streets, San Francisco, to Lingren-Swinerton, Inc., 225 Bush Street, for its proposed new plant at Sacramento, Cal., estimated to cost $1,500,000 including equipment.

The Pacific Fruit Express Co., 65 Market Street, San Francisco, is reported to have plans under way for a new ice-manufacturing and car-icing plant at Antelope, Cal., with project to include car repair shops and other buildings with power house, estimated to cost close to $1,200,000 including machinery. It is proposed to begin work in about 30 days.

The Pacific Coast Paper Mills, Inc., Bellingham, Wash., will soon begin the construction of a one-story addition to cost approximately $200,000 including machinery. J. J. Herb is president.

The City Council, Aberdeen, Wash., has engaged J. L. Stannard, 722 North C Street, Tacoma, Wash., consulting engineer, to prepare preliminary plans for a proposed municipal hydroelectric power project. Bonds in amount of $2,000,000 have been arranged. S. C. Watkins is water superintendent.

The King Cold Storage Co., Yucaipa, Cal., will erect a one-story cold storage and refrigerating plant, to cost about $25,000.

The Illinois Pacific Glass Co., Fifteenth and Folsom Streets, San Francisco, has awarded a general contract to George Wagner, Inc., 181 South Park Street, for its new six-story plant, 195 x 256 ft., estimated to cost $500,000 including machinery. P. D. Burtt is company engineer.

The Pacific Veneer Co., Marshfield, Ore., has plans under way for a one-story addition to its mill, to cost about $25,000 with equipment. Frank Lowe is general manager.

The Municipal Water & Power Department, Los Angeles, is arranging a bond issue for $11,000,000 for expansion and improvement in municipal power plants and system, for which public approval will be asked at the forthcoming primary election.

Robert H. Orr, Corporation Building, Los Angeles, architect, has plans under way for a six-story automobile service, repair and garage building, 90 x 275 ft., to cost about $200,000 including equipment.

The Otis Orchards Irrigation Co., Hampton Park, Wash., has preliminary plans for rebuilding its pumping plant recently destroyed by fire with loss estimated at $17,000 including machinery.

The Western Wallboard Co., 4527 Ninth Avenue, South, Seattle, Wash., has plans for a two-story addition, 48 x 175 ft., for which work will begin at once.

The Amalgamated Metals Corporation, San Francisco, has opened a branch plant, covering 17,500 sq. ft., at 808 East Sixty-second Street, Los Angeles, for the manufacture of secondary metals. The officers at Los Angeles are E. B. Gorman, president; A. Kirsch and I. E. Sugarman, vice-presidents; M. Davidson, treasurer; M. Van Dorn, secretary, and Emar Goldberg, managing director.

The Black & Decker Mfg. Co., Towson, Md., has completed the erection of a new branch office, service station and distribution warehouse at Sixth Avenue and Tenth Street, Oakland, Cal., which it will occupy on Sept. 1.

The Globe Mfg. Co., Seattle, has been organized to manufacture dies and tools, do metal stamping and punch press work, plating and enameling and specialty work. The company has a plant on Spokane Street. The officers are C. L. Cobb, president and general manager; Allen Crippen, vice-president, and J. M. Matthews, secretary and treasurer.

The Seattle office of the General Electric Co. has the

contract for equipment for a power house to be built by the Fairbanks Exploration Co., at Fairbanks, Alaska. It includes a 10,000 kw. steam turbine, transformers and transmission line materials for 25 miles of 33,000 volt distribution system.

St. Louis

ST. LOUIS, Aug. 2.

BIDS will be received by the City Council, Charleston, Mo., E. H. Smith, city clerk, until Aug. 12 for four pumping units for the municipal sewage system, one of 750 gal. per min. capacity, and three, each 250 gal. per min., electrically-operated, complete with auxiliaries. Wilcox & Berthe, Chemical Building, St. Louis, are consulting engineers.

The Evans & Howard Fire Brick Co., 920 Market Street, St. Louis, will soon begin the construction of a new plant on the North and South Roads, with main one-story unit, 40 x 386 ft. It is estimated to cost close to $100,000 with equipment. Clarence King is president.

Elevating, conveying, screening and other equipment will be installed in the proposed six and nine-story meal elevator and warehouse, 60 x 130 ft., to be erected by the Ralston Purina Co., 827 South Eighth Street, St. Louis, estimated to cost $250,000. Bids will be asked about the middle of August. W. H. Danforth is president.

The Culp Elevator Mills, West Pine Street, Warrensburg, Mo., are in the market for a number of electric motors. Jesse J. Culp is head.

The Howell Ice & Fuel Co., Wynne, Ark., has tentative plans for a new cold storage and refrigerating plant reported to cost $40,000 with equipment.

The Common Council, Blackwell, Okla., plans the installation of pumping equipment in connection with proposed extensions in the municipal waterworks to cost $198,000. A bond issue is being arranged.

The Missouri Casket Co., 2108 East Ninth Street, Kansas City, Mo., has awarded a general contract without competition to the Collins Brothers Construction Co., Davidson Building, for its proposed four-story plant, 50 x 120 ft., to cost approximately $100,000 with equipment. Hans Von Unwerth, Finance Building, is engineer. Earl T. Newcomer is president.

The Chicago & North Western Railway Co., 226 West Jackson Boulevard, Chicago, will begin the construction of a one-story addition to its engine house and locomotive repair division at Fremont, Neb., to cost about $35,000. W. J. Town is company engineer.

The Motor Accessories Corporation, 1801 Wyandotte Street, Kansas City, Mo., manufacturer of automobile equipment, has awarded a general contract to W. K. Martin, 5536 Michigan Avenue, for a one-story plant, 90 x 131 ft., to cost close to $40,000 with equipment. E. H. Gill, 4906 Michigan Avenue, is architect.

The Field Hardware Mfg. Co., 111 East Thirty-first Street, Kansas City, Mo., has awarded a general contract to Earle W. Jennings, Security Building, for a new one-story plant, 45 x 125 ft., to cost about $30,000 with equipment. F. Stanley Field is president.

The Missouri Pacific Railroad has plans for a new machine shop to be erected at Poplar Bluff, Mo. A 100-ft. turntable is to be part of the equipment. This project will cost $300,000.

Canada

TORONTO, Aug. 2.

MACHINE tool sales for the month of July compare favorably with those for June and were decidedly better than for July, 1925. The current demand is chiefly for replacement, but a number of inquiries are out for tools for new works. The automotive industry is constantly entering the market and a fairly large list is now being prepared for equipment for the addition to the plant of the General Motors Corporation of Canada, at Oshawa, Ont. Several other industrial interests which are completing new plants or additions are also expected to make known their tool and equipment requirements within the next few weeks.

It is understood that no contracts have been placed in connection with the power development at Grand Falls, St. John, N. B. Bids were submitted some time ago and are now under consideration by the Canadian International Paper Co., which is financing the development.

Construction has been started by the General Motors Corporation of Canada on an addition to its plant at Oshawa, Ont., 90 x 240 feet, two stories, for the production of Oldsmobile cars. The company is also building a plant for the manufacture of Pontiac cars. The total outlay on additions and equipment will exceed $500,000.

The Water Commission, Kitchener, Ont., has authorized the superintendent to obtain prices on compressor machinery and a Diesel engine for the waterworks plant.

Millard & Lamb, boiler makers and welders, Montreal, will build a manufacturing plant adjoining the Place D'Armes.

The Northland Elevator Co. will build a 1,500,000 bu. elevator at Port Arthur, Ont.

Western Canada

North Vancouver, B. C., proposes to construct a waterworks plant to cost $135,000, and make extensions and repairs to the present plant to cost $52,000.

Peter Thompson & Sons, of Mansfield, Alta., have taken over the lumber mills at Creemore, Alta., formerly operated by G. A. Kerr, and will make improvements and install new equipment.

The Union Oil Co., Vancouver, B. C., plans to spend $1,500,000 at Barnett, B. C., on the construction of a refinery.

The ore mill of the Standard Mining Co., Silverton, B. C., was recently destroyed by fire with a loss of $150,000.

John Gunn & Sons have the contract for the erection of a new factory at Winnipeg, Man., for Hilton & Sons, Wall Street, for the manfacture of corrugated boxes, etc. The building will be 200 x 200 ft. and cost $90,000. Construction has begun.

Foreign

PRELIMINARY work has been placed under way on a new rifle and fire-arms manufacturing plant at Jyvaskyla, Finland, to cost about $100,000. It is expected to have the building ready for the machinery installation late this year and the plant completed for service next spring. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, Finland No. 214,655. The American Consulate, Helsingfors, Finland, also has data regarding the project.

The Silesian-American Corporation, an interest of the Anaconda Copper Mining Co., 25 Broadway, New York, is disposing of a bond issue of $15,000,000, the proceeds to be used for the purchase of zinc mining and refining properties in Germany, for which arrangements recently were completed, and for proposed extensions and improvements. Cornelius F. Kelley is president of both organizations.

A company has been organized at Shanghai, China, headed by Shen Hsiung-Ching, professor of chemistry, Shanghai University, to construct and operate a local plant for the manufacture of a line of industrial chemicals and by-products.

The Administration General de las Usinas Electricas del Estado, Montevideo, Uruguay, is asking bids until Sept. 3 for a quantity of electrical apparatus, including 23,900 switches, 1500 fuses, lead fuses, outlets, etc.; specifications available at the office of the Electrical Equipment Division, Bureau of Foreign and Domestic Commerce, Washington, reference EE-1020.

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The Ulen Contracting Co., 120 Broadway, New York, is reported to have secured a contract from the Polish Government for the construction of four grain elevators at different distributing points in that country, estimated to cost about $3,000,000 with equipment.

The Ford Motor Co., Detroit, is said to have filed notice with the Jugo-Slavian Minister of Commerce, Belgrade, Jugoslavia, requesting a concession for the construction and operation of a plant in that country. The negotiations are being carried out in the name of Henry Ford.

Preliminary work has been started on a new hydro-electric generating plant on the Romanche River, France, designed for an ultimate capacity of 100,000 hp. The project is slated for completion early in 1930. The American Consulate, Paris, Franklin P. Waller, assistant trade commissioner, has information regarding the enterprise.

An inquiry from a Chinese company has been received by the National Machine Tool Builders' Association, 826 Provident Bank Building, Cincinnati, for quotations on the following tools, all belt driven, for a trade school: One 6-in. hand-feed slotter, adjustable stroke, quick return ram, fast and loose pulleys, ball-bearing main shaft; one centering machine for stock to 5 in. in diameter; one cold sawing machine for rounds up to 6 in., squares 5½ in., and flats 4 x 10 in. with friction feed, automatic trip adjustable tooth gage, and fitted with bench grinding device; one bench type wet tool grinder, having fast and loose pulleys and belt shifter, also one extra wheel; and four small wood-turning lathes.

Industrial Finances

The General Electric Co.'s net sales for the first six months of the current year totalled $147,450,867.96, and the profit available for dividends on the common stock and surplus is $19,000,393, indicating net earnings equivalent to $2.63 per share on the 7,211,481 shares of new no par value stock.

The Superior Steel Corporation, Pittsburgh, reports net profits for the six months ended June 30 of $223,395, as against a deficit in the same period last year of $33,521. Net profits for the second quarter of this year were $71,408, compared with $151,987 in the first quarter and a deficit of $2,212 in the same period last year.

Net income of the A. M. Byers Co., Pittsburgh, for the quarter ended June 30 was $280,332, compared with $426,697 in the first quarter of the year.

The National Acme Co., Cleveland, reports earnings of $278,712 for the first six months of 1926 after deduction of charges including Federal taxes, reserves and depreciation. This is nearly 56c. a share on the 500,000 shares of $10 par common stock. Sales for the period total $4,300,000.

American Locomotive Co., with its subsidiaries, reports a net income of $3,338,289 for the six months ended June 30, as compared with $212,718 for the same period in 1925. After deducting the regular dividends on common and preferred stock, the company had a deficit of $149,158.

Fairbanks-Morse Co., Chicago, for the three months ended June 30, show earnings substantially in excess of the same period last year, when they amounted to $890,028, or $2.08 a share on the common stock. In the first quarter of 1926 the company earned $1.06 a share, compared with 67 cents a share in the same quarter last year. Unfilled orders at present are in excess of those of the corresponding time last year.

Virginia Iron, Coal & Coke Co., Roanoke, Va., reports a net loss for the second quarter of 1926 of $39,616, as compared with a loss of $10,017 for the previous three months' period. An allowance of $165,194 was made for six months' depreciation and depletion.

The Borg & Beck Co., 310 South Michigan Boulevard, Chicago, manufacturer of automobile clutches, earned $455,000 or $3.89 a share on 117,000 shares of stock in the first half of 1926 after all charges, including taxes, as compared with $276,000 in the same period of 1925. The company has earned more than the full years dividend in the first half. As of June 30, last, current assets were $1,678,000 against $1,443,806 six months ago. Current liabilities including tax reserve and July 1 dividends amounted to only $411,000 against $393,000 at the end of 1925.

John C. Stanley, receiver American & British Mfg. Corporation, Bridgeport, Conn., which went into bankruptcy soon after the ending of the war, has distributed approximately $250,000 to common and preferred creditors as the first and final dividend in winding up the affairs of the company.

Lloyd B. Adams, owner and manager of the Adams Sheet Metal Works at Lake Geneva, Wis., has filed a voluntary petition in bankruptcy. Liabilities are scheduled at $8,478 and assets of $870 are claimed.

THE LAST WORD

(Contributed by the Reader Service Department of the Iron Age Publishing Co.)

IMPORT and export statistics have always seemed dull and tiresome to me until last week, when one lone statistic gave flight to my imagination. In a table totaling over one million tons, it is reported that *the tonnage of horseshoes imported during the twelve months ended June* 30, 1926, *is* 1.

Who is this hardy horseshoe importer, undaunted by his fellows, who deal in hundreds and thousands of tons? What a magnificent contempt for large numbers! How did he make out with his horseshoes? Are they rusting their lives away in some waterside warehouse? Or are they helping pull milk wagons, win 20 to 1 shots, plow farms, and perform those countless other duties which are part of the life of self-respecting equine footwear? Or will they find their way to Florida's quoit pitching playgrounds?

THE "money" feeler" is well known to most of us. He is the gentleman who, through long experience, detects the presence of money in an envelope merely by crushing the envelope slightly between his fingers. He is sensitive to the peculiar crackle of paper money.

But the other day a subscriber who sent in two one-dollar bills, to pay for a situation wanted ad, introduced us to another gentleman who makes it dangerous to send money through the mails. This gentleman is a "money smeller." His supersensitive proboscis leads him to money as unfailingly as a hound trails a fresh rabbit scent. However, in this case his educated nose availed him little, for our reader threw him off the scent by sprinkling each bill with a highly scented face powder.

The "money feeler" was foiled, too, by using two very old bills, wrinkled and limp with age, from which the crackle of youth had long since departed.

IN the smaller towns of France you always see women picking up little twigs hardly larger than matchsticks, to burn in their tiny fireplaces. Firewood is none too plentiful in that country, where coal is a luxury. And you cannot cut down a tree without a Government permit.

Therefore, it was to be expected that THE IRON AGE series of articles on steel-frame dwellings would arouse considerable interest in the land of the fleur de lys. *L'Usine*, the French iron and machinery paper, prints the series very nearly in full, using the romantic-sounding title, "Les Habitations de Demain." Any deserving subscriber can obtain the series in the original English by dropping a postal to 239 West Thirty-ninth Street, New York, and asking for "The Dwellings of Tomorrow."

A. H. D.